MINING & PETROLEUM STANDARD

AND

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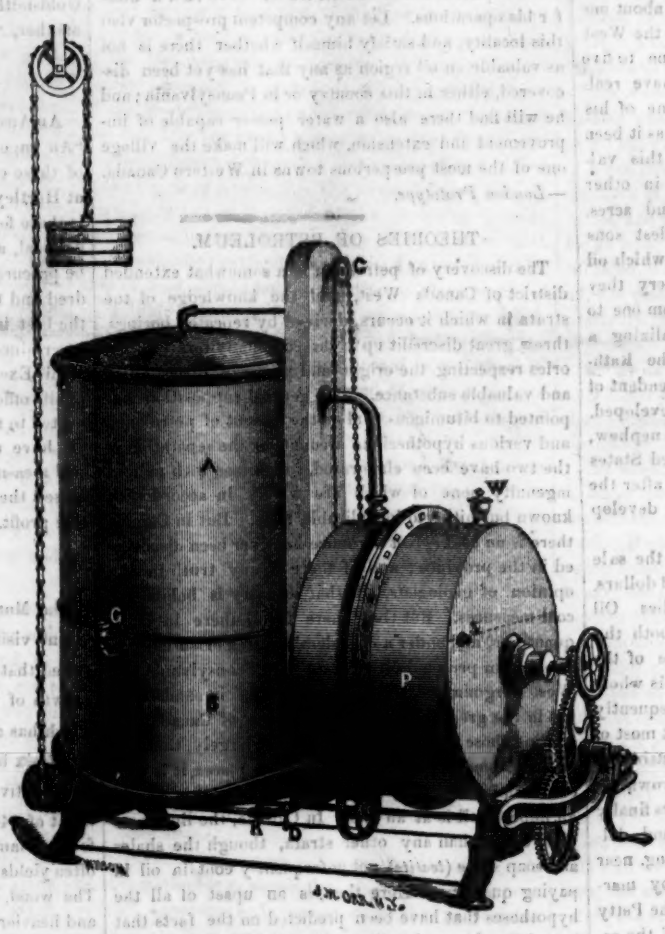
EMPIRE STATE GAS MACHINE,

LEVI STEVENS' PATENT, FOR SUPPLYING,

Dwellings, Stores, Factories and Public Buildings.

THE GAS GENERATED BY THIS MACHINE

Is a mixture of the vapor of hydro-carbon with common air. The mechanical devices employed are such as, from a long experience and critical examination into the nature of the elements brought into use, seem best adapted to secure a certain and satisfactory result. Gasoline, the liquid employed, is the more volatile portions of Petroleum, of a specific gravity of 0.6587. This liquid exposed to the action of this machine is vaporized, and a close mechanical mixture of the vapor with common air is effected. The value of the gas produced, its permanency, its illuminating quality, and freedom from liability to condensation, depend almost entirely upon the perfect and uniform character of this mixture. Hence the great importance of mechanical means adapted to secure all the conditions requisite in a Portable Gas Machine.



The EMPIRE STATE GAS MACHINE is the most SIMPLE and EFFECTIVE MEANS KNOWN FOR PRODUCING GAS WITHOUT HEAT.

Its action is automatic, feeding itself with constant supplies of Gasoline, thus securing steady and uniform supplies of Gas. The gas produced is equal to the best known Illuminating Gas. It is as economical as any other, and is adapted to a wider range of use for Lighting, Heating and Mechanical purposes. It will maintain its illuminating power under as great a degree of cold as any other. It is free from danger with the ordinary care in using gas. Its remarkably pure and steady light is pleasant for the eye. It renders it easy for persons living remote from street gas pipes to enjoy the luxury of a pure GAS-LIGHT, at a COMPARATIVELY SMALL COST, AND WITH LITTLE TROUBLE.

☞ The public are invited to witness its operations at our store. GASOLINE will be supplied by us, at market prices, or may be obtained from the various other sources of supply now going into operation.

MITCHELL, VANCE & Co., 620 Broadway, New York,

Manufacturers of Chandeliers and Gas Fixtures of every description. Also, Chandeliers, Brackets, Lamps, &c., for Coal Oil, adapted to Churches, Public Buildings, Dwellings, &c.

CASH PRICE-LIST OF MACHINES COMPLETE.

(Boxed and delivered on the cars at the Manufactory.)

No. 1	$150	5 Argand Burners.
do. 2	250	do.
do. 3	350	do.
do. 4	450	do.
do. 5	600	do.
do. 6	1,000	10 do.
do. 7	1,500	125 do.
do.	250	do.

This machine will produce the most brilliant and steady light, without Fire or Heat, and is warranted to operate in every respect as represented.

PETROLEUM.

THE OIL REGION OF WEST VIRGINIA.

The oil region of Western Virginia was surveyed and entered in 1790 by Philip McCall, of Philadelphia, father of Gen. McCall. Mr. McCall, who was a merchant in Philadelphia, sold it out in various quantities to different parties, who either settled upon it or in turn sold it to other parties. Among the purchasers of the largest tract were the Pettys, a numerous family. The next large purchaser was Mr. William P. Rathbone, who emigrated hither from New Jersey about twenty-four years ago. As the name of Rathbone is more intimately associated with the oil regions of West Virginia than any other, a little further reference to the family may not be uninteresting. The elder Rathbone had four sons and three daughters. The sons are named John V., John C., Saml. B., and Wm. Van Allen. One daughter married Peter G. Van Winkle, now representing the State of West Virginia, in the United States Senate. Another married Colonel Frost, of Virginia, who sacrificed his life in the cause of his country in the Shenandoah Valley. The third married Mr. J. P. Atkinson, a respected citizen of New York. The widow of Colonel Frost survives, residing in Parkersbug, and is now the only daughter living.

The Rathbone and Petty tracts amount to about one thousand acres, and comprise the centre of the West Virginia oil region. Rathbone paid from one to five dollars per acre for his tract, and his heirs have realized splendid fortunes from it. At the time of his death the property was not so valuable; nor has it been since, owing to the rebellion. In addition to this valuable tract, Rathbone purchased largely in other places, to the amount of eight or ten thousand acres. Upon the division of the estate the two eldest sons obtained a deed to a part of the lands upon which oil had not been discovered. After its discovery they disposed of leases to different parties for from one to two thousand dollars each—althgether realizing a million of dollars. The other members of the Rathbone family have handsome fortunes, independent of their interest in tracts of land as yet undeveloped. Col. John C. Rathbone, in company with his nephew, Dr. Atkinson, Assi-tant Surgeon in the United States Army, are now visiting the region, looking after the family estates, and making preparations to develop territory on their own account.

The Pettys realized very moderately from the sale of their lands, perhaps not over sixty thousand dollars, which was divided between half a dozen families. Oil was struck about the same time (in 1850) on both the Petty and Rathbone tracts. About the time of the discovery one of the Pettys (John F.) leased his whole interest in the oil territory for $10, and subsequently became so chagrined at his error that he spent most of his time cogitating as to the best manner of putting an end to his existence—whether by shooting, drowning, or cutting his throat. The successful purchasers finally presented him with the sum of twelve thousand dollars as a donation, upon which he is now living, near Point Pleasant, Ohio. Another of the family by marriage (W. R. Buffinton, who married one of the Petty girls) did better. He held on to his portion of the estate until after the discovery of oil, and realized some fifty thousand dollars.

All the territory north and south of Burning Springs, comprising a belt of a hundred miles, has been sold for oil purposes, the former owners, in nearly every case, going to some of the more fertile lands in the Western States, where they purchased and settled down, like those of the Oil Creek region, upon large and productive farms.—*Pittsburg Chronicle.*

OIL IN DELAWARE.

The valley of the Thames seems, from geological appearances, which are verified by excavations, to be the principal oil-producing region in the western peninsula. Oil has been found in many places along the chanel, and in many other parts of it the most satisfactory indications of its existence in this bed have been discovered—Indeed, so satisfied are all the dwellers in the valley of this rich mineral sublying their possessions that they concern themselves to little in communicating it to the public. They know that their time will come, and that the trade and the trader will yet come to them without any effort or outlay on their part to hasten them. There may be some sense in the Rip Van Winkle policy, but it would be a better sign to find more exertion and spirit among the people; it is nearly as blameable to neglect all proper opportunities to improve our material interests as it is to act directly in prejudice of them. Nor is this a merely selfish view to take, fot it is wisely provided that in the prosecution of our personal interest we must if the project be not an evil one, and particularly if it be one which will add to the commodities of trade or exchange, equally benefit others in some way as we do ourselves. These not inapplicable to the good people of the village of Deleware. They commenced their village life at the same time our city started from the woods and they are but villagers yet. They have natural advantages which London never had, but they are not put to account; and now that the oil is floating not only below them, but on the very surface of their lands, covering all their waters they do nothing to make it productive; they do not even take the trouble to draw the attention of the oil-trader to so rich a mine for his operations. Let any competent prospector visit this locality, and satisfy himself whether there is not as valuable an oil region as any that has yet been discovered, either in this country or in Pennsylvania; and he will find there also a water power capable of improvement and extension, which will make the village one of the most prosperious towns in Western Canada. —*London Prototype.*

THEORIES OF PETROLEUM.

The discovery of petroleum in a somewhat extended district of Canada West, and the knowledge of the strata in which it occurs, derived by repeated borings, throw great discredit upon the commonly received theories respecting the origin and place of this strange and valuable substance. The general supposition has pointed to bituminous coal as the parent of petroleum, and various hypothesis to account for the separation of the two have been elaborated, sometimes with painful ingenuity, none of which are wholly in accord with known but hitherto inexplicable facts. But in Canada there is no coal. Not an ounce has ever been discovered in the province; and if there is any truth in the opinion of geologists, all that country is below the coal measures. But that there is oil there in large quantities, and under a considerable area of surface we know from personal observation. In Pennsylvania and West Virginia, petroleum is found only in sandstone; but in the great majority of the wells of Canada, including those that have yielded most largely, there is no sandstone whatever. In the former places, it is a received opinion that if, in boring, the limerock is struck, all hope of oil is at an end. In Canada, the limestone yield better than any other strata, though the shales and soap stone (*teatite*) not unfrequently contain oil in paying quanities. Here then, is an upset of all the hypotheses that have been predicted on the facts that have been observed in the region first explored. Hence the scientific men are now abandoning the coal theory and coming to the belief, first expressed, if we are not mistaken, by Agassiz, that petroleum is of animal origin; that it is the aggregated particles of the exuvia of countless zoophytes and other minute forms of marine life, that have been discovered in the formatton of the sedimentary rocks. And this opinion will, we take it, hold until a better, or rather a more plausible one supersedes it. The truth is, that with the limited number of well ascertained facts in regard to petroleum, which geologists and others possess, any satisfactory generalization is at present impossible; hence all theories, hypotheses and opinions, no matter from whom emanating, are to be received with many grains of allowance. Few or none of them are well enough grounded to hazard money upon, though they held in most cases with a degree of pertinacity that is proportioned to the amount of ignorance upon which they rest. We shall not, as inquiries advance, and as results are attained, be at all surprised to see that the accepted theory in regard to the origin and formation of coal is given up, and that in the revolution, what is now thought to be an effect will be recognized as a cause—that coal will be held to be petroleum from which all the more ethereal portions have been expelled by means of heat or great pressure, and in which a certain quantity of vegetable matter, fern leaves is found.

NANTUCKET ON THE WANE,

PETROLEUM THE CAUSE.

The New York *Herald* says if petroleum has built up Western Pennsylvania it has unbuilt Nantucket. Nantucket is dying with the death of the oil trade; hence houses that were built there at a cost of from $3,000 to $5,000, are offered for sale at auction and knocked down from $500 to $2,000, when the purchaser rolls them on board of a schooner and sends them to Norwich or New London where they are re-erected and sold at a handsome advance over what he paid. The schewdness of the Yankee turns even his misfortunes to the best account If he cannot keep a town himself he can sell his house to somebody who can. Goldsmith would hardly find material in Nantucket for another, "Deserted Village."

OIL IN NEW SOUTH WALES.

An Australian letter to the London *Times* says:—"An important addition has been made to the resources of these colonies by a late discovery at Illawarra and at Hartley, in New South Wales. A bituminous shale is there found, in color and consistence much like Kendal coal, and inexhaustible quantities of it are said to be procurable almost on the surface. It yields one hundred and thirty three gallons of oil equal in quality to the best imported kerosene—a fact which was lately ascertained by experiment in Sidney in the presence of his Excellency Sir John Young and various leading public officers. As vast quantities of kerosene are imported to these shores from America, a Sydney company have undertaken to manufacture from these new coal measures, and are confident of being able to undersell the importers, and yet make a highly respectable profit.

A REMARKABLE TREE.

The Moniteur, in giving an account of the Emperor's recent visit to the Jardin d'Acclimation at Algiers, stated that his majesty was much struck with the rapid growth of the Eucalyptus Resinifera, or Autralian tree, which has attained a hight of thirty feet and a diameter of six inches in two years. This remarkable tree in its native soil—Australia—sometimes reaches the hight of 340 feet, and has been found more than 19 feet in diameter at about a yard from the ground. It often yields planks 200 feet long without a single defect. The wood, notwithstanding its rapid growth, is hard and heavier than oak. It also presents beautiful colors, and is consequently well adapted for cabinet work. An astringent gum known in commerce as "kino" is obtained by making incisions into its bark. The encalyptus is an evergreen; its leaves have nearly the same shape as the laurel. The development of its lateral branches is no less wonderful than that of its stems. They are small until the trunk attains the hight of about 100 feet, when they shoot out almost horizontally, sometimes to the length of 90 feet, giving the tree the appearance of an enormous umbrella. The seed, strange to say, is very small, and not unlike that of the tobacco plant. The flowers are white, of a most agreeable smell, and much liked by bees, which extract from them a most delicious honey. It is also remarked in Australia that the ague is almost unknown in districts where this tree is abundant.—*Paris Letter.*

A SIMPLE, SAFE, AND EASY MODE OF PREPARING OXYGEN.

BY EMMERSON J. REYNOLDS, F.R.G.S.

There are few of the elementary bodies that approach in importance the gas oxygen, constituting, as we know it to do, rather more than one-fifth of the air we breathe, three-fourths of the solid crust of the globe, and eight-ninths by weight of water. Yet, bathed as we are in a vast ocean of this gas, it seems paradoxical to say that its preparation for experimental purposes is a comparatively costly operation, and, as a recent unfortunate event but to fully proved, not always unattended with danger. I do not propose now to discuss minutely the merits or demerits of the methods in every-day use for the production of oxygen, nor to describe any special piece of apparatus which may suit my particular fancy in the preparation of the gas. My object is simply to draw the attention of the readers of this Journal to a source of this wonderful element which has hitherto been much neglected, but which seems to me to be peculiarly suitable to the requirements of the photographer, both on account of the simplicity of the manipulation and the certainty of the result.

As we all know, the methods of preparing oxygen may be grouped into three classes. First, we have those cases in which heat is applied to a solid, such as chlorate of potash, oxide of manganese, or oxide of mercury. Secondly, where a liquid is used as a source of the gas; as instances, we may take a highly acid solution of bichromate of potash and the solution of Mr. Robbin's "oxygenesis." Thirdly, a liquid also furnishes the oxygen, but the heat is applied to it in a peculiar way. As the best illustration of this we may cite M. St. Clair Deville's process, which consists in passing a fine stream of strong sulphuric acid through a platinum worm heated to redness. By this treatment the sulphuric acid is broken up into sulphurous acid and oxygen. All the methods belonging to the first and second classes are manageable and productive; but, as a general rule, a liquid is a more safe and convenient source of a gas than a solid, though, in the case of oxygen, not usually by any means so economical. This objection applies with particular force to solution of bichromate of potash, and of Robbin's oxygenesis.* I shall presently show, however, that solution of common bleaching powder, or chloride of lime (so called), can be made to yield up all its oxygen in a very curious and simple manner, thus furnishing a cheap and most convenient source of the gas.

Having already alluded to Mr. Robbin's oxygenesis, it may be well to mention here that it is a powder consisting of a mixtute of bichromate of potash and peroxide of barium in proper proportions. When some of this is placed in water and sulphuric acid added, oxygen is evolved without the application of heat, and the action proceeds with great regularity. The chief objection to its use is the necessarily high price charged for it. The cost is now five shillings per pound.

In the *Annalen der Chemie und Pharmacie*, M. Fleitmann recently drew attention to the fact that the solution of the ordinary bleaching powder may be made to give off its oxygen by the addition of a very small quantity of peroxide of cobalt. This curious observation is by no means new, as a notice of it may be found in Fowne's excellent Manual of Chemistry, and other works. As I have repeatedly experimented with the process, and can well appreciate its great convenience and simplicity, I shall describe it in detail, in the hope that it may be as useful to others as it often is to myself.

We have first to make a little peroxide of cobalt, and then a solution of strong bleaching powder. With these materials at hand it is possible to prepare any given amount of oxygen at a moment's notice with perfect safety and great ease.

Preparation of Peroxide of Cobalt.—This is a very simple matter indeed. Obtain about fifty grains of nitrate of cobalt—a salt easily procurable at dealers in chemicals. Dissolve this in an ounce of cold water and then add to it a clear solution of bleaching powder until a black or rather brownish-black precipitate of peroxide of cobalt ceases to be thrown down; the latter is then allowed to subside to the bottom and, when completely settled, the supernatant liquid is poured off and its place supplied by clean water. It is not necessary to dry the peroxide, but it is far better to keep it always under water, whence it can easily be transferred to a vessel used for the generation of gas. As I shall presently explain, the same quantity of peroxide can be used over and over and again without any deterioration as long as it is preserved in the moist state, as just mentioned.

Solution of Bleaching Powder.—As a matter of convenience it is necessary to have the largest possible amount of hypochlorite of lime dissolved in a given quantity of water—in fact, to have a very strong solution to work with. This is satisfactory in many ways, as it is inconvenient to use a large bulk of liquid, and moreover, scarcely any heat is required if concentrated solutions are employed in the preparation of the gas.

Having procured a good sample of fresh bleaching powder, take one pound of it, place this in any convenient vessel, and pour over it one quart of cold water; agitate well at first, then allow the mixture to stand for an hour or two so as to dissolve out as much of the bleaching salt as possible; this object is, of course, promoted by occasional stirring. When most of the insoluble matter (which rarely amounts to much less than fifty per cent.) has subsided, the clear liquid is quickly strained through a thick piece of tow placed in the throat of a funnell. The strained liquor is now poured over another pound of the bleaching powder and treated in just the same way as at first, so that the liquid, after extracting the second quantity of chloride of lime, should hold in solution nearly a pound of the soluble salts. A third and even a fourth treatment is possible, and may be used with advantage when the quantity of oxygen required is considerable. The solution is now quickly filtered through a piece of old calico or linen so as to make it quite bright and clear, in which state it works better than if turbid. When the whole of the liquid has passed through, the insoluble residue from both extractions is thrown on the filter and subjected to gentle expression. This is the most economical mode of working, but it is necessary to caution the intending experimentalist against allowing the expressed liquid to fall immediately into his already bright solution, as the former is likely to be turpid; moreover, the texture of the cloth is so weakened by the contact of the bleaching liquid that it very readily breaks, and, if roughly pressed, suddenly projects the pasty mass in different directions, which is not by any means agreeable. The solution prepared as above described should be preserved in well corked, or, better, stoppered bottles, and if kept in a reasonable cool place will lose but little in strength after a very long time.

Preparation of Oxygen.—The production of oxygen by this method is so simple that we do not require even as much apparatus as is necessary in the preparation of hydrogen from zinc and dilute sulphuric acid. This arrangement is the most convenient that can be used. Select a good plain pint, quart, or Winchester quart (half-gallon) bottle, according to the volume of liquid to be operated upon. The thinner the glass is the better, as it is less likely to crack on immersion in water of about 100° or 120° Fahrenheit. Into the mouth of the bottle fit a good, soft cork, which should be bored by means of a red hot iron, or otherwise, in order to permit the passage of a piece of glass or metal tubing three or four inches in length by about one-sixth or one-eighth of an inch in diameter. Over the end of the latter should be slipped a tube of vulcanised rubber of the same diameter, and two or three feet in length. It is advisable to add another piece of metal or glass tube to the free end of the flexible one, and to the former to tie a small weight or stone, in order to prevent it from floating about in the water when delivering the gas, which would otherwise prove very annoying.

Having prepared the generating bottle, and arranged our receivers for the gas in the pneumatic trough, or connected the delivering tube directly with the gas-bag, if the oxygen be wanted for the oxyhydrogen light, we now introduce into the flask the required quantity of the solution of the bleaching powder. The next step is to add the whole of the moist peroxide of cobalt. Now replace the cork carrying the delivery tube, and in a few minutes the evolution of oxygen will commence. Of course, in this as in any other method it is necessary to reject as much of the first portion of the gas as may be considered equal in bulk to the air in the bottle and delivery tube previous to commencing the experiment. In the cold, and when a concentrated solution of bleaching powder is used, the evolution of pure oxygen proceeds with great regularity, but the gas comes off in a very rapid stream if the generating vessel be immersed in warm water at a temperature of about 100° 120° Fah.; a higher heat cannot with safety be applied to a thick glass bottle. Once the action commences it continues uninterruptedly until the whole of the oxygen has been evolved. The production of gas when it has once commenced cannot be totally checked but it may be diminished by the applying very cold water to the exterior of the generating bottle. No danger need ever be apprehended, as the action is in no way violent. At first there is a tendency to frothing, but this quickly diminishes as the evolution of gas proceeds. However, with a view to the possibility of some of the liquid passing over through the delivery tube, it is better not to fill the generating bottle more than two-thirds.

When the evolution of gas has totally ceased, the contents of the flask are poured out into any open vessel, and well diluted with water. After standing for an hour or so all the peroxide of cobalt will have subsided, when the supernatant fluid should be poured off, the peroxide washed with clean water, and then preserved in the moist state until required for another operation.

So far for the practice of the method. We have now to consider the results obtainable with it, and I shall then conclude with a few words about the theory of the matter.

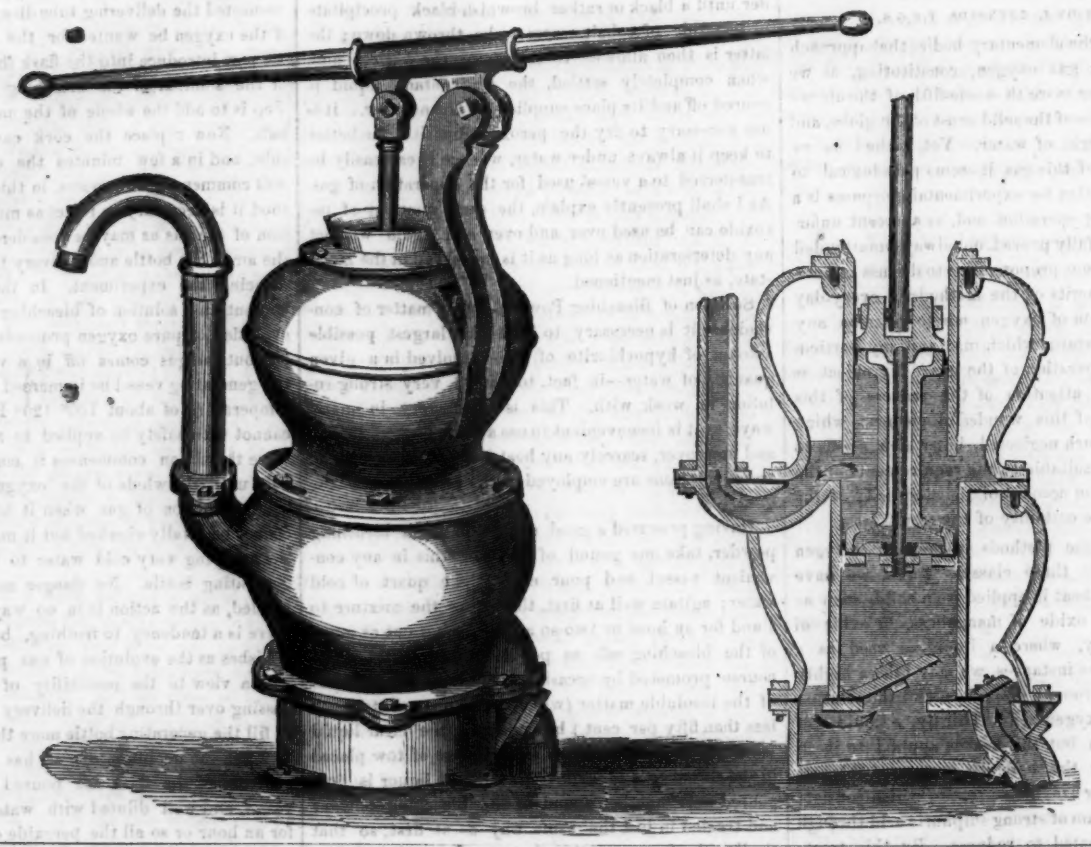
The amount of oxygen evolved from a given volume of bleaching solution is of necessity proportional to the amount of hypochlorite of lime present in the liquid. Highly concentrated solutions will yield between twenty and twenty-four volumes of gas, that is to say, one pint of solution will yield twenty-four pints—three gallons of oxygen in a very pure state. The result can be obtained in practice by taking care that the bleaching powder used in preparing the solution is fresh and of good quality. The next point of importance is that the whole of the oxygen of the hypochlorite is given off; there is no loss or waste, asproved by the following experiments:—A known volume of a moderately strong solution of bleaching powder was taken, and the actual weight of oxygen which it contained estimated by determining the quantity of arsenious acid which it was capable of oxidizing; knowing, then, the weight of oxygen present, it was easy to calculate the volume which should be evolved. Another experiment was then made by measuring the volume of gas actually given off on treatment with peroxide of cobalt, and comparing the result with the calculated volume deduced from the first experiment. The following are the details of an actual determination:—

	Cubic Inches.
Amount of solution taken	6·1
Capable off giving of (by calculation) of oxygen	61·21
Volume of gas actually obtained	61·24

Therefore, there is no loss in preparing oxygen by this method. Bleaching powder, or "chloride of lime" as it is generally called, is, according to F. Rose's analysis, a mixture of 26·7 per cent. of hypochlorite of lime, 25·5 of chloride of calcium, 28·0 of common lime, and the rest of combined water. When mixed with water the two first dissolve, but the hypochlorite alone is capable of yielding up oxygen, which it does in the following way:—

*For Robbin's Method, see Druggists' Circular p. 102, 1864.

WEST'S IMPROVED PUMP.



$$\underset{\text{Hypochlorite of lime.}}{CaO, ClO,} = \underset{\text{Oxygen.}}{OO.} + \underset{\text{Chloride of calcium.}}{Ca\,Cl.}$$

If the dry bleaching powder be strongly heated the same decomposition into two equivalents of oxygen and one of chloride of calcium takes place, but sometimes with great violence. As we have already seen, however, the mere presence of peroxide of cobalt brings about precisely the same result in the aqueous solution. It is very difficult to say how the peroxide acts, as I have not been able to detect it undergoing any change in the liquid, nor does it present the least difference after it has been frequently used. We can only assume, therefore, that it has the power of inducing decomposition of the hypychlorite without undergoing change itself; or, in scientific languange, its acts catalytically. —*Brit. Phto. Jour.*

SEA-SOUNDINGS.

Various sea-soundings, made by the new telegraph company in England, in preparation for laying the Atlantic sub marine cable this summer, reveal the following results:—The Baltic sea between Germany and Sweden is only 120 feet deep, and the Adriatic, between Venice and Trieste 130. The greatest depth of the channel between France and England does not exceed 300, whilst the southwest of Ireland, where the sea is opened, the depth is more than 3,000 feet. The seas to the south of Europe are much deeper than those in the interior. In the narrowest part of the Strait of Gibralter, the depth is only 1,000 feet, while a little more to the east it is 3,000. On the cost of Spain the depth is nearly 6,000. At 250 miles south of Nantucket (south of Cape Cod) no bottom was found at 7,800 feet. The greatest depths of all are to be met with in the Southern ocean. To the west of the Cape of Good Hope 16,000 feet have been measured, and to the west of St. Helena, 28,000. Dr. Young estimates the average depth of the Atlantic at 36,000 feet, and that of the Pacific at 20,000.

The Salt of the Dead Sea.—One of our most distinguished explorers of the Holy Land Mr. Tristram, attributes the intense saline character of the Dead Sea to the hill of "Jebell Usdum." This is a hurge ridge of salt about a mile wide, and running north-east and south-west for a distance of three miles and a half, then due north and south for four miles further. It is situated near the southern extremity of the Dead Sea, and renders that portion of it much more salt than the northern portion. Further Mr. Tristram thinks that it is the proximate cause of the saltness of the Dead Sea, the drainage of which has been dissolving away portions of salt and carrying it to the Dead Sea ever since the elevation of the ridge of Akabah separated the latter from the Red Sea, or since the desiccation of the ocean, which existed up to the Eocene period, presuming (which seems most probable) that the fissures of the Ghor were of submarine origin, and that the valley itself was, during the Tertiary period, the northern-most of a series of African lakes, of which the Red Sea was the next.—"Geological Magazine," June, 1865.

Traction of Horses at Various Rates of Traveling.—The traction or force exercised by a horse decreases with the increase of speed, thus:

Rates in mile per hour,	2	3	3½	4	4½	5
Force exerted by the horse	166 lbs.,	125	104	38	62½	41⅔

M. Auguste Larson, a young workman employed in the iron foundry of Messrs. Holmberg & Co., of Lund, in Denmark, has invented a method of casting iron tubes by pouring molten iron into a cylinder kept in a state of very rapid rotation. The rotation of the cylinder has the effect of forcing the liquid metal against the sides of the cylinder, and the result is a tube of perfectly even bore. Messrs. Holmberg & Co. have patented this invention both in Denmark and in France.

The Colossus of Rhodes—Dr. C. F. Luders, of Hamburg, has just published a critical historical treatise on the "Colossus of Rhodes," about which the most crude ideas and fabulous exaggerations exist in the public mind. According to researches of Dr. Luders, this monument—one df the seven wonders of the world—is reduced to nothing more than a colossal statue, standing on terra firma like the "Bavaria" at Munich, but near the harbor, and dedicated to Phoebus Apollo. He insists upon it that its standing open-legged across the mouth of the harbor, and being used as a light-house, is a pure invention, and an emanation of fancy from later writers.

The "Courrier de Saone et Loire says:—"Sepulchral news reaches us from Autun; the grave-diggers have struck! The people of Autun must remain unburied. We see no other way of opposing the pretensions of men who live by other people's deaths. High prices seem to be affecting everything to live at the present rates, and if this grave-diggers' strike succeeds it will soon be so that they "can't afford to die."

Power of the Magnet.—The smallest natural magnet generally possesses the greatest proportion of attractive power. The magnet worn by Sir Issac Newton in his ring weighed only three grains, yet it was able to take up 746 grains, or nearly 250 times its own weight; whereas magnets weighing above two pounds seldom lift more than five or six times their own weight.

The world estimates men by their success in life, and, by general consent, success is evidence of superiority.

Never, under any circumstances, assume a responsibility you can avoid consistently with your duty to yourself and others.

GAS-LIGHT COMPANIES IN THE UNITED STATE

Compiled from official sources expressly for the AMERICAN GAS-LIGHT JOURNAL.

When Chartered.	Town.	State.	Chartered Capital.
1857	Adrian	Mich.	50,000
1856	Akron	O.	20 000
1845	Albany	N. Y.	25 . 0
1858	Albion	N. Y.	30,000
1851	[illegible]xandria	Va.	106,580
1852	Alleghany	Pa.	200,000
1858	[illegible]town	Pa.	60,000
1857	Alton	Ill.	75,000
1859	[illegible]	Pa.	40,000
1859	Amesbury and Salisbury	Mass.	30,000
1858	Annapolis	Md.	100,000
1858	Ann Arbor	Mich.	23,000
1858	Astoria	N. Y.	20,000
1855	Atlanta	Ga.	50,000
1857	Attleboro'	Mass.	6,000
1850	Auburn	N. Y.	80,000
1851	Augusta	Ga.	80,000
1838	Augusta and Hallowell	Me.	84,700
1860	Aurora	Ind.	10,000
1817	Baltimore	Md.	550,000
1852	Bangor	Me.	120,000
1855	Batavia	N. Y.	32,000
1853	Bath	Me.	65,000
1859	Bath	N. Y.	15,000
1861	Battle Creek	Mich.	15,000
1855	Belfast	Me.	14,000
1856	Belmont	Pa.	20,000
	Beloit	Wis.	30,000
1854	Bethlehem	Pa.	50,000
1859	Beverly	Mass.	40,000
1858	Binghampton	N. Y.	50,000
1859	Birmingham	Pa.	40,000
1855	Bloomington	Ill.	40,000
1853	Bordentown	N. J.	50,000
1822	Boston	Mass.	1,000,000
1859	Brattleboro'	Vt.	21,000
1851	Bridgeport	Ct.	90,000
1857	Bridgeton	N. J.	50,000
1856	Bristol	Pa.	30,000
1855	Bristol	R. I.	35,000
1859	Brockport	N. Y.	25,000
1853	Brookline	Mass.	77,000
1825	Brooklyn	N. Y.	2,000,000
	Brownsville	Pa.	
1848	Buffalo	N. Y.	600,000
1852	Burlington	N. J.	100,000
1853	Burlington	Vt.	75,000
1859	Burlington	Iowa.	65,000
1861	Calias	Me.	90,000
1852	Cambridge	Mass.	300,000
1852	Camden	N. J.	300,000
1853	Camden	N. Y.	50,000
1856	Canandaigua	O.	19,0 0
1853	Canton	N. J.	80,000
1860	Cape Island	Pa.	16,000
1855	Carbondale	Pa.	30,000
1856	Carlisle	Pa.	15,000
1858	Catasaqua	N. Y.	
1857	Catskill	Pa.	30,000
1846	Chambersburg	S. C.	723,800
1851	Charleston	Mass.	200,000
1858	Charlestown	N. C.	14.000
1859	Charlotte	Vt.	15,000
1851	Charlotteville	Mass.	100 000
1856	Chelsea	Pa.	35,000
1849	Chester	Ill.	1,800,000
1857	Chicago	Mass.	50,000
1851	Chicopee	O.	40,000
1841	Chillicothe	O.	1,600,000
1859	Cincinnati	N. Y.	1,000,000
1860	Citizens', Brooklyn	Mass.	90,000
	Citizens', Reading	Tenn.	100,000
1860	Clarksville	N. H.	20 000
1846	Claremont	O.	200,000
1858	Cleveland	Mass.	30,000
1859	Clinton	N. Y.	10,000
1854	Clyde	N. Y.	50,000
1860	Cohoes	N. Y.	30,000
1860	Cold Spring	Mich.	25,000
1859	Cold Water	Pa.	37,500
1852	Columbia	. C.	44,000
1857	Columbia	Cal.	50,000
1853	Columbia	Ga.	54,000
1850	Columbus	O.	100,000
1853	Columbus	N. H.	50 000
1858	Concord	Ky.	100 000
1854	Covington and Newport	Md.	60,000
	Cumberland		
1857	Danbury	Ct.	50,000
1856	Danville	Pa.	30,000
1855	Davenport	Iowa.	56,000
1848	Dayton	O.	50,000
1853	Dedham	Mass.	40,000
1860	Deleware	O.	30,000
1849	Detroit	Mich.	500,000
1860	Dobbs' Ferry	N. Y.	25,000
1854	Dorchester	Mass.	150,000
1850	Dover	Del.	12,000
	Dover	N. H.	
1857	Doylestown	Pa.	50,000
1854	Dubuque	Iowa.	50,000
1853	East Boston	Mass.	133,000
1856	East Greenwich	R. I.	11,200
1861	East Hampton	Mass.	10,000
1861	East New York	N. Y.	50,000
1857	Easton	Md.	9,000
1850	Easton	Pa.	125,000
1856	Eastport	Me.	50,000
1855	Elizabeth	N. J.	100,000
	Ellicott's Mills	Md.	10,000
1852	Elmira	N. Y.	50,000
1852	Erie	Pa.	68,000
1838	Evansville	Ind.	60,000
	Exeter	N. H.	60,000
	Fair Haven	Ct.	20,000
1847	Fall River	Mass.	26,000
1859	Fayetteville	N. C.	25,000
	Fifth Ward (Milwaukee)	Wis.	50,000
1857	Fishkill	N. Y.	10,000
1853	Fitchburg	Mass.	100,000
1859	Flemington	N. J.	20,000
1855	Flushing	N. Y.	20,000
1858	Folsom	al.	
	Fort Wayne	Ind.	40,000
1851	Frankfort	Ky.	50,000
1851	Frederick City	Md.	36,000
1854	Fredericksburg	Va.	72,500
1858	Fredonia (Natural Gas)	N. Y.	10,000
1856	Freeport	Ill.	20,000
1853	Fremont	O	25 000
1856	Fulton	N Y	12 000
1855	Galena	Ill	70 000
1859	Galion	O	25 000
1858	Galveston	Texas	150 000
1854	Gardiner	Me	100 000
1853	Geneva	N Y	75 000
1851	Germantown	Pa	Merged
1859	Gettysburg	Pa	20 000
1854	Glenn's Falls	N Y	35 000
1854	Gloucester	Mass	40 000
1857	Gloversville	N Y	15 000
1853	Grand Rapids	Mich	50 000
1855	Great Barrington	Mass	5 000
1849	Great Falls	N H	50 000
1860	Greenfield	Mass	20 000
1858	Greenpoint	N Y	100 000
1859	Greensboro'	N C	12 000
1858	Greensburg	Pa	30 000
1854	Hagerstown	Md	15 000
	Hamilton	O	15 000
1859	Hannibal	Mo	100 000
1857	Harlem	N Y	350 000
1855	Harrisburg	Pa	100 000
1849	Hartford	Ct	200 000
	Hastings	N Y	
1856	Haverhill	Mass	50 000
1859	Haverstraw	N Y	20 000
1861	Haverville	Mass	15 000
1859	Hempstead	N Y	16 000
1862	Hoboken	N J	100 000
1856	Hollidaysburg	Pa	30 000
1861	Hollyoke	Mass	20 000
1861	Homer & Cortlandt	N Y	40 000
1854	Honesdale	Pa	30 000
1860	Hornellsville	N Y	12 000
1853	Hudson	N Y	50 000
	Hunter's Point	N Y	
1857	Huntington	Pa	18 000
1856	Huntsville	Ala	7 325
	Indianapolis	Ind	150 000
1857	Iowa City	Iowa	40 000
1852	Ithaca	N Y	75 000
1857	Jackson	Mich	25 000
	Jackson	Miss	30 000
	Jackson	Cal	50 000
	Jacksonville	Flor	35 000
1853	Jacksonville	Ind	50 000
1856	Jacksonville	Mo	25 000
1853	Jamaica	N Y	20 000
	Jamaica Plain	Mass	78 000
1856	Jamestown	N Y	25 000
	Janesville	Wis	50 000
1853	Jeffersonville	Md	30 000
1858	Jersey City	N J	300 000
1856	Jersey Shore	Pa	15 000
1857	Johnstown	Pa	80 000
	Joliet	Ill	300 000
1858	Kalamazoo	Mich	30 000
1860	Keene	N Y	60 000
1855	Keokuk	Iowa	100 000
1855	Kingston	Pa	50 000
1859	Kittanning	Pa	20 000
1854	Knoxville	Tenn	63 000
1860	Laconia	N H	20 000
1859	La Crosse City	Wis	100 000
1854	Lafayette	Ind	60 000
1856	Lampertville	N J	30 000
1849	Lancaster	Pa	100 000
1856	Lancaster	O	25 000
1855	Lansinburg	N Y	25 000
1849	Lawrence	Mass	200 000
1859	Leavenworth	Kansas	200 000
1856	Lebanon	Pa	26 000
1861	Le Roy	N Y	25 000
1853	Lewisburg	Pa	20 000
1852	Lewiston	Me	100 000
1856	Lewistown	Pa	30 000
1853	Lexington	Ky	100 000
1853	Little Falls	N Y	112 000
1861	Little Rock	Ark	20 000
1858	Lockhaven	Pa	28 000
	Lockport	N Y	100 000
1838	Logansport	Ind	40 000
1849	Louisville	Ky	600 000
1852	Lowell	Mass	200 000
1852	Lynchburg	Va	70 000
1859	Lynn	Mass	55 000
	Lyons	N Y	30 000
1852	Macon	Ga	75 160
1851	Madison	Ind	160 000
1855	Madison	Wis	100 000
1854	Malden & Melrose	Mass	50 000
1852	Manayunk	Pa	40 000
1852	Manchester	N H	100 000
1830	Manhattan (N. Y. City)	N Y	4,000 000
	Mansfield	O	25 000
1854	Marblehead	Mass	40 000
	Marlboro'	Mass	20 000
	Mauch Chunk	Pa	50 000
1857	Marietta	O	50 000
1860	Marion	O	12 000
1858	Marysville	Cal	50 000
1847	Massilon	O	20 000
1855	Meadville	Pa	30 000
	Medina	N Y	2 000
1852	Memphis	Tenn	300 000
	Meriden	Ct	20 000
1850	Metropolitan (N. Y. City)	N Y	1,000 000
1859	Middleboro'	Mass	15 000
1858	Middletown	Ct	50 000
	Middletown	N Y	
	Milford	Mass	20 000
	Milledgeville	Ga	100 000
	Milton	Pa	10 000
1847	Milwaukee	Wis	400 000
1852	Mobile	Ala	200 000
1836	Monroe	Mich	40 000
1852	Montgomery	Ala	100 000
1856	Montpelier	Vt	30 000
1859	Morrisania	N Y	30 000
1859	Morristown	N J	18 000
1854	Mount Holly	N J	16 650
	Mount Vernon	O	50 000
1857	Muscatine	Iowa	50 000
1854	Nantucket	Mass	50 000

GAS-LIGHT COMPANIES IN THE UNITED STATES,

Compiled from official sources for the AMERICAN GAS LIGHT JOURNAL.

When Chartered.	Town.	State.	Chartered Capital.
1852	Nashua	N H	45 000
1850	Nashville	Tenn	00 000
1858	Natchez	Miss	46 000
	Nevada City		
1852	New Albany		200 000
1846	Newark	N J	352 000
1856	Newark	O	30 000
1852	New Bedford	Mass	130 000
1859	Newbern	N C	22 000
	New Britain	Ct	30 000
1851	New Brunswick	N J	100 000
1852	Newburg	N Y	67 000
18 2	Newburyport	Mass	150 000
1857	Newcastle	Del	32 300
1847	New Haven	Ct	250 000
1858	New London	Ct	70 000
1835	New Orleans	La	1,500 000
1853	Newport	R I	130 000
1854	Newton & Watertown	Mass	92 000
	Newton	N J	30 000
	Newton	Pa	20 000
	Newtown	N Y	
1828	New York	N Y	1,000 000
1859	Niagara Falls	N Y	15 000
	Norfolk	Va	60 000
	Norristown	Pa	41 700
1855	North Attleboro	Mass	50 000
	Northern Liberties	Pa	00 000
	North Adams	Mass	425 000
1856	Northampton	Mass	35 000
1859	North Bridgewater	Mass	16 000
1856	Norwalk	Ct	30 000
1859	Norwalk	O	30 000
1854	Norwich	Ct	75 000
1861	Norwich	N Y	12 000
1859	Nyack	N Y	20 000
1860	Oberlin	O	10 000
1855	Ogdensburg	N Y	75 000
1859	Orange	N J	65 000
1852	Oswego	N Y	81 200
1855	Ottawa	Ill	45 000
2856	Owego	N Y	40 000
1860	Owensboro	Ky	50 000
1856	Paducah	Ky	75 000
1861	Pain-ville	O	40 000
1856	Palmyra	N Y	12 000
1847	Paterson	N J	125 000
1850	Pawtucket	R I	75 000
1855	Peek kill	N Y	61 000
1860	Penn Yan	N Y	12 000
1859	Peoples' Chicago	Ill	500 000
1855	Peoria	Ill	100 000
1852	Petersburg	Va	120 000
1841	Philadelphia	Pa	3,000 000
1855	Piqua	O	50 000
1855	Pittsburg	Pa	300 000
1854	Pittsfield	Mass	50 000
1859	Placerville	Cal	30 000
1860	Plainfield	N J	25 000
1859	Plattsburg	N Y	16 000
1858	Plymouth	Mass	40 000
1760	Port Chester	N Y	50 000
1860	Port Jervis	N Y	20 000
1849	Portland	Me	300 000
1859	Portland	Oreg	50 000
1859	Port Lavaca	Texa	50 000
1851	Portsmouth	N H	70 000
855	Portsmouth	O	50 000
1985	Portmouth	Va	100 000
1856	Pottstown	Pa	20 000
1850	Pottsville	Pa	110 000
1850	Poughkeepsie	N Y	84 000
1848	Providence	R I	1.000 000
1858	Quincy	Ill	300 000
	Quincy	Mass	00 000
1855			
1857	Racine	Wis	
1858	Rahway	N J	43 000
1848	Raleigh	N C	50 000
1851	Reading	Pa	25 000
1859	Richmond	Va	100 000
	Richmond	Mass	341 975
1859	Richmond County	N Y	40 000
1852	Ripley	O	
1857	Rochester	N Y	25 000
1854	Rockford	Ill	200 000
1854	Rock Island	Ill	40 000
1852	Rockland	M	100 000
854	Rome	N Y	50 000
1854	Rondout and Kingston	N Y	85 000
1859	Roxbury	Mass	65 150
	Rutland	Vt	150 000
			20 000
	Saco	Me	
1857	Sacremento	Cal	71 600
1859	Sag Harbor	N Y	500 000
1858	Saint Albans	Vt	20 000
	Saint Johnsbury	Vt	15 000
1857	Saint Joseph	Mo	80 000
1859	Saint Louis	Mo	50 000
1857	Saint Paul	Min	600 000
1856	Salem	N J	200 000
1850	Salem	Mass	80 000
1859	Salem	O	200 000
1859	Salisbury	N C	25 000
	Salisbury Mills	Mass	14 600
	Salmon Falls	Me	1 250
	San Antonio	Texas	25 000
1854	Sandusky	O	73 000
1859	Sandwich	Mass	75 000
1852	San Francisco	Cal	10 000
	San Jose	Cal	2,000 000
1858	Saratoga Springs	N Y	
	Saugerties	N Y	89 000
1849	Savannah	Ga	80 000
1851	Schenectady	N Y	200 000
1856	Scranton, Gas and Water	Pa	50 000
1857	Selma	Ala	100 000
1856	Seneca Falls and Waterloo	N Y	20 000
	Shreveport	La	80 000
1856	Sing Sing	N Y	40 000
	Smyrna	Del	
1860	South Admas,	Mass	10 000
1859	South Bridge	Mass	5 000
	South Boston	Mass	200 000
	Springfield	O	200 000
1854	Springfield	Ill	75 000
1849	Springfield	Mass	100 000
1856	Stamford	Ct	6 250
1857	Staten Island	N Y	150

When Chartered.	Town.	State.	Chartered Capital.
1858	Staunton	Va.	18 000
	Steubenville	O.	150 000
	Stockton	Cal.	50 000
1848	Syracuse	N Y	125 000
	Tamaqua	Pa	40 000
1859	Tarrytown and Irvington	N Y	70 000
1858	Taunton	Mass	100 000
	Terre Haute	Ind.	100 000
	Thompsonville	Ct	25 000
	Tiffin	O	25 000
1858	Toledo	O	100 000
1847	Trenton	N J	100 000
1848	Troy	N Y	200 000
1856	Urbana	O	30 000
1849	Utica	N Y	80 000
1858	Vicksburg	Miss	25 000
1859	Vincennes	Ind	2 500
1868	Virginina City	N T	100 000
1858	Walden	N Y	30 000
1858	Waltham	Mass	30 000
1857	Ware	Mass	20 000
1861	Warren	O	500 000
1854	Warren	R I	15 000
1855	Washington	D C	20 000
1859	Washington	N C	100 000
1848	Washington	Pa	00 000
1854	Waterbury	Ct	20 000
1852	Waterford	N Y	25 000
1852	Watertown	N Y	30 000
1856	Watertown	Wis	20 000
1858	Wautome	Wis	60 000
1857	Waverly	Miss	100 000
1854	West Cambridge	Mass	25 000
1852	Westchester	Pa	20 000
	Westfield	Mass	50 000
	Weston	O	100 000
1857	West Point	N Y	75 000
1858	West Troy	N Y	20 000
1860	Wheeling	Va	50 000
	White Plains	N Y	1,000 000
1856	Wilkesberre	Pa	80 000
1850	Williamsburg	N Y	70 000
1858	Williamsburg	Va	12 000
1857	Williamsport	Pa	60 000
1859	Williamantic	Ct	200 000
1858	Wilmington	F C	36 000
1852	Wilmington	Del	20 000
1854	Winchester	Va	20 000
1861	Windsor	Vt	10 000
	Woburn	Mass	82 600
1856	Woodstock	Vt	25 000
1853	Woonsocket	R I	160 000
1856	Wooster	O	
1849	Worcester	Mass	
1855	Xenia	O	40 000
1854	Yonkers	N Y	100 000
1849	York	Pa	40 000
	Yorkville	S C	20 000
1858	Ypsilanti	Mich	20 000
1850	Yreka	Cal	30 000
1848	Zanesville	O	44 000

Gas-Light Companies in the British Provinces of N. A.	Province	
1854	Belleville	C W	33 040
1854	Brankford	C W	32 000
	Brockville	C W	50 000
	Chatham	N B	50 000
1854	Charlotte Town	P E I	50 000
1857	Cobourg	C W	30 000
	Dundas	C W	30 000
	Frederick	N B	50 000
1848	Halifax	N S	160 000
1850	Hamilton	C W	125 000
1848	Kingston	C W	80 000
1858	London	C W	100 000
1847	Montreal	C E	400 000
1854	Ottawa	C W	40 000
1859	Point Levi	C E	25 000
1859	Port Hope	C W	28 000
1847	Quebec	C E	200 000
1848	Saint Catherine's	C W	80 000
1859	Saint Hyacinthe	C E	15 000
	Saint John	N B	170 005
	Saint Johns	N F	50 000
1858	Sorel	C E	14 000
1848	Toronto	C W	400 000

Gas-Light Companies in Cuba, Mexico, South America & New Zealand,	State	
1857	Callao	Chile	
	Cardenas Cubana	Cuba	50 000
	Compania	Hav'a	500 000
	Cienfugos	Cuba	
	Guanabacoa	Cuba	
	Regla	Cuba	
	Trinidad	Cuba	
	Guinass	Cuba	
	Guyaquil	S A	150 000
	Havana	Cuba	2,000 000
	Lima	Peru	100 000
	Maranham (Ghartered)		
	Maranzas	Cuba	50 000
	Mexico City	Mex	550 000
1854	Montevieda	S A	500 000
	Para (Ghartered)		
1857	Rio de Janeiro	S A	1,000 000
	San Iago	Chile	500 000
	Saint Jago de Cuba	Cuba	450 000
	Valparaiso	Chile	500 000
	Vera Grus	Mex	500 000
	Ville Clara	Cuba	50 000
	Auckland	N Z	

THE MINERAL INTERESTS OF THIS CONTINENT REVOLUTIONIZED.

The smelting of silver and gold ores is no new thing, and even the process of J. E. Lyon & Co., is not patentable. In general it consists in crushing the ores, seperating the heavy sulphides, which contain most of the metals, from the light gang rock, wasting these sulphides to free them of sulphur and then smelting them. In this process ordinarily a large quantity of litharge, the protoxyd of lead, is used as a fleet. To this is also added some—or several—alkaline re-agents, such as potash, either as a carbonite or nitrate, soda, borax, &c., and also a quantity of sand, or pounded glass.

We understand, says the *Mining Register* of Colorado, that in the process being introduced here, but very little fleet, other than lead, is to be used, and that for this purpose the lead ores such as are found here in abundance are employed. The lead is to be used over and over again with successive charges of ore, until it becomes heavily loaded with gold and silver, when it will be cupelled in a blast furnace, where the lead will be converted into litharge and blown off into a chamber prepared to receive it, or raked off from the surface of the melted mass. This leaves the silver and gold only, which is to be run out in bars, and may be seperated here by the use of acids, or may be sent East as an alloy, as parties shall prefer. The litharge formed in cupellation is similar to that used as a paint, and sold in every drug store. Once found it is the best possible form into which it can be changed as a fleet, and is therefore exactly the thing to be used as a fleet again. Thus the same head may be used oer and oer again a thousand times. There will be however necessarily, a constant loss of the lead by evaporation and passing off in the fumes which arise from the smelting mass. The antimony which abounds so largely in all lead ore here, and the bismuth and zinc, if any exist, will mostly pass off in the fumes at the first smelting, and thus becomes lost at once. As a fleet, they are perhaps nearly as good as lead.

In this article we do not pretend to give Mr. Lyon's process minutely or even correctly, but in general to give the outline of what it must necessarily be. The use of large amounts of lead greatly facilitates the reduction of ore, and obviate the necessity of other fleets, at the same time enabling the operator to accomplish his work with ordinary fuel. Herein, as we understand is the secret of the success of Messrs. Lyon & Co., and yet it is not designed to preserve any secrets in the whole mode of treatment. With the immense amount of lead found in every portion of our mineral regions, we see no reason why this process may not be a perfect success, and one so economical as to be everywhere practicable.

We hope the days of experimenting are over, and that practical results are to take their place. Such at least are the indications.

It is at least certain, that four or five times as much gold, and a hundred times as much silver, is obtained from any given sulphide ore by smelting as the old process of crushing and amalgamating in stamp mills. The reason is obvious. The gold is infinitesimally divided in these sulphides, and every particle of ore, as reduced in a stamp mill contains a large number of infinitely smaller particles of gold which are not liberated. Fire liberates them by driving the sulphur and disintegrating the matrix, the lead attracts and collects the particles and carries them down in a mash to the bottom.

Again, in the stamp mill the sulphides of silver may be crushed, but they remain a sulphide still, and do not amalgamate with the quicksilver, but wash away so that a rich silver ore might be worked with stamps, be passed over tables plated with copper, and amalgamate with quicksilver, without leaving more than a trace of silver behind.

In washing, these sulphides are converted into oxides, and in melting, the oxides become metalic particles of silver, and like those of gold, are collected and carried down by the lead.

In the stamp mill process the silver contained in the ores as a sulphide is nearly all wasted by the smelting process, it is as nearly all saved. Generally the silver saved by the ordinary amalgamating process is only such as exists in the ore united with gold, as metal. By the smelting, all alike is saved.

Herein lies the superiority of this process over all other. The lead ore will always pay largely for working in gold and silver coin alone. When no other fleet is needed, there can be no great expense, as the only matter of cost is fuel, and hence the economy of the process.

The quartz from the "Texas Lode" assayed $251.32 per cord, and by this process produced upwards of $1200 per cord—the same was the case with several other prominent Lodes.

GAS.

HEATING BY GAS.

We submit the following article, translated from the Journal de l'Eclairage au Gaz, of Paris. Though less applicable to the modern fire-places of our own country than to the smoky rooms of Paris, and many other European cities, it will, we think, not be without interest to our readers.

Heating by gas is one of the most important of modern applications. However, as early as September 28, 1799, Philippe Lebon suggested the employment of gas as a means of heating. The memoir of Lebon was entitled "Thermo-lampes, ou poiles qui chauffent et Eclarient aric economic," etc. The principle of heating is still in its infancy, and notwithstanding the progress of modern industry we are still compelled to warm ourselves as our ancestors did ten centuries ago. The fire-places of Herculaneum were almost as perfect as our own. The Romans were ignorant of the laws of caloric and knew as little of the conductibility and dilatability of air. The progress of physical science has but slightly benefitted modern constructors—it is true generally, that they possess little more science than did the Romans of old. It has been calculated that the fire-places of the good old times, which could shelter an entire family under their respectable mantels, and receive four chimney sweepers in a row in their flues, that there was not obtained more than 1½ to 2 per ct. of the heat developed by the combustion of the wood. The fire-places of the present day do not give more than 8 to 10 per cent. of the heat developed—this result is the inevitable consequence of the mode of construction. It is of course necessary to allow the products of combustion to escape in order to avoid being smoked out, or poisoned by inhalation—but the same flue which gives passage to these products of combustion removes also the air as it becomes heated in the fire-place; therefore, the only useful effect of our fire-places consists in the heating of the air by their radiating power. The best means of obviating this difficulty, is, to substitute for heating by wood or peat, heating by gas. The perfect realization of this mode of heating is not easy—it will demand much study and frequent abortive attempts and trials. But from the present time, heating by gas will be in the domain of the practical—it is pushing into the laboratory of Chemistry—into domestic economy, and even into the domain of mechanics.

From an economical point of view, if we calculate the amount of heat which illuminating gas can produce burning in the open air, compared with that produced by the usual materials of combustion, we obtain results little favorable to heating by gas. But if we take into consideration the heavy losses of heat during the period of kindling and burning of the ordinary combustibles, the overheating of furnaces, flues, chimneys, etc., we will often find a great economy, notwithstanding the high price of this combustible. The indirect advantages are numerous—with gas one is spared the trouble of lighting and extinguishing a fire—it is sufficient to turn a stop-cock to put out a fire in the parlor, or to relight it in the bed-chamber. Thus, without expense or difficulty, heat can be transported from dining room to parlor, from parlor to bed-room. With heating by gas we are relieved from that inevitable scourge, smoke,—Thus without smoke fewer curtains are soiled, less paper blackened, less furniture covers to be cleaned, and that which is more important still, fewer lungs filled with smoke and dust.

The substitution of gas for the present means employed for heating would have an immense influence on the construction of houses and public edifices—it would dispense with those enormous conduits, which built against the walls, occupy so much valuable space in apartments, reach far above the roof, and are, for architects a great embarasment in the distribution of rooms, while they invariably disfigure the products of their skill.

Heating by gas has already become immensely developed in England, Russia, and in Paris; laboratories, kitchens, stores, apartments, are all heated by gas. Numerous styles of apparatus have been proposed for this purpose; some are excellent and some are without value They can be divided into three classes. The first comprises the apparatus where gas is burned pure, as occurs every day with the burners used for illumination. In the second class, the light is almost completely suppressed by introducing through the centre of jets of gas all the atmospheric air necessary to produce perfect combustion of both hydrogen and carbon. The maximum of heat is thus obtained while completely consuming the smoke which blackens the object to be heated.

OXYGEN AS A MEANS OF ECONOMIZING THE CONSUMPTION OF COAL-GAS.

A company is being formed in Paris to manufacture oxygen by the method of M. Archereau. The use to which the oxygen is to be applied is that of economizing the consumption of coal gas for lighting purposes. The company intend to lay down pipes side by side with the existing gas mains, and from these mains to carry pipes into the houses or workshops of those consumers of ordinary gas who may be willing to avail themselves of the economy to be obtained by burning it in pure oxygen instead of in atmospheric air. The oxygen is to meet the carbureted hydrogen only as the latter issues from the orifice of the burner, so that there will be no danger of explosions. As a coal-gas flame, supplied with pure oxygen, gives out eight times as much light as a similar flame supported only by the diluted oxygen of the atmosphere, the customers of the new company are to burn only one cubic foot of ordinary gas for every eight cubic feet they burn now, and their saving, after paying for the oxygen which is to effect this great economy of consumption, is to amount to 50 or 60 per cent. of the amount of their present gas bills. Moreover, they are to obtain a very much whiter and more brilliant light than they get at present. Such is the promise—we shall see what comes of it.—*American Artisan.*

LENOIR GAS ENGINE.

A very ingenious addition has been made to the Lenoir engine by M. Arbos. The engine would often be extremely useful where gas could not be procured, and to make coal-gas would be impracticable. In a very simple apparatus M. Arbos vaporizes water, and passes the vapor over red-hot charcoal dust. The mixture of carbonic acid, carbonic oxyd, and hydrogen produced is then passed through milk of lime to remove the first, and the other two go on to be mixed with air and exploded in the cylinder of the engine. Extending the use of the engine as mentioned above, M. Arbos' apparatus effects a great saving in the cost of working the machine. Gas produced for two francs will do the work of six or eight franc's worth of coal gas.

It has been found that a hemp rope used for winding in a coal pit 200 yards deep lasted about fifteen months with ordinary working, drawing from 150 to 200 tons per day. A round iron wire rope under the same work, lasted twelve or thirteen months, while a flat wire rope lasted only about 11 months.

THE MINING & PETROLEUM STANDARD AND AMERICAN GAS-LIGHT JOURNAL, is published at Tribune Buildings, No. 1 Spruce st. on the 2d and 16th of every month, and is a recognized official organ of—

LIGHT, HEAT, MINING INTERESTS.

PETROLEUM, WATER-SUPPLY, AND

SCIENTIFIC SUBJECTS GENERALLY.

JAMES W. BRYANT, Proprietor.

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The Mining and Petroleum Standard

AND

AMERICAN GAS-LIGHT JOURNAL,

PUBLISHED ON 2D AND 16TH OF EVERY MONTH.

JAMES W. BRYANT,
DR. C. W. TORREY, } Editors.

SATURDAY, SEPT. 16, 1865.

☞ We shall have twenty or thirty vols. of our last year's issue bound, which we will furnish to subscribers at $8 each, or non-subscribers at $4.

Notice.—Dr. Charles W. Torrey has become associated with us in the Editorial duties of our Journal, and is authorized to represent us in its business department also.

PRESERVATION OF SHIP'S BOTTOMS.

Ships without sheathing of any kind, 50 and even 80 years old, are not uncommon in China, writes Lieut. Mariot. The wood used in the construction of these vessels is the same as in Europe, but they are covered with a preservative coating, a mixture closely comingled by heat, of an oil and a vegetable resin, which is obtained by incisions made in immense trees. These trees are covered with a thick foliage of heart shaped leaves, with wide spreading roots covered with up shoots. After a very long period in the sea, one never sees the vessels thus protected fouled with the marine vegetation, or the mass of young shells which usually attach themselves so quickly even to vessels double copper-plated. It was my duty to repair a small boat belonging to the "Amphitrite," rendered unfit for service by the *tarets*, (a kind of wood worm,) notwithstanding the tar and paint with which it was covered. I employed this Chinese coating, and more than a year afterwards there were no traces of the invasion of the *tarets*.

A New Gas Apparatus.—This invention consists in a novel apparatus for manufacturing carbureted hydrogen gas from coal or rock oil, which is more particularly adapted for use in dwelling houses, and which may also be used for warming purposes. The patentee of this apparatus is Owen Collins, of New York City.

INSPECTORS OF GAS WORKS.

The benefit which small Gas Companies would derive in having an occasional inspection of their works by a competent Engineer, would fully compensate for the expense which an inspection would involve, and we are of the opinion that if this plan was more universally adopted, a great saving would result. Of course when the works are small the services of an experienced Gas Engineer cannot be employed at the trifling salary such works can afford to pay. While a practical and intelligent man may manage works which are in order yet the moment anything is wrong they cannot correct it to advantage, and *patch up* time after time, until the whole apparatus becomes materially injured, when by timely advice from a competent Engineer, such results could always be avoided.

There are but few scientific and experienced Gas Engineers in the United States, compared with the number of Gas Works, hence these are secured and monopolised in especial positions. Doctor Charles W. Cresson is the only Gas Engineer who stands presented to the public for these duties, and his time is constantly occupied in them. His education, and his long experience in the Philadelphia Gas Works makes him a valuable expert in all that pertains to Gas, and we hope to see others who can devote attention to this, we consider, important business.

PROF. TORREY'S SUMMER VACATION.

We learn from the San Francisco Mining Press, that our distinguished fellow citizen, Prof. Torrey, has returned to that city from an exploring expedition with Dr. Jackson and the Hon Levi Parsons, with his portfolio enriched with a large number of rare and beautiful botanical specimens. We may also take it for granted that the Professor will not neglect to make valuable notes and observations on the mineral and mining resources of the country through which he has travelled, and we hope to be able to present to our readers after his return to our city, with some article from his able pen. The Professor, in partial recognition of his faithful services for so many years, was granted four months leave of absence by the Government, which he is devoting to service and pleasure, both of which are with him synonimous terms.

ATMOSPHERIC PRESSURE AS A SOURCE OF MECHANICAL POWER.

The *Journal of the Franklin Institute* has a series of articles under this title, supposed to have been written by Mr. Ewbank, formerly Commissioner of Patents, advocating the combination of a high pressure engine with a very low pressure engine, the same steam to go through both engines. It is also proposed to drain the condenser by a pipe descending thirty-six feet below the bottom of the condenser, and dipping into a vessel, so that the water should not run entirely out of it. A small air-pump would then serve to keep a vacuum. The use of ice is recomended for condensation because "the advantage of ice for internal condensation arises from the fact that air combined with ordinary water is discharged in the act of freezing, hence there would be little air to pump out."

Randolph & Elder, of Glasgow, have for some years labored to introduce engines on the high-and-low pressure principle, and have claimed great ecomomy of fuel in them; but for some cause of causes not generally known, they have not persuaded the proprietors of steamships to adopt their plan to the extent it seems to merit. Other engineers have likewise labored to introduce the plan. But the *majority* are against it; and in the republic of engineering the majority have great influence on capitalists.

LACE MADE BY CATERPILLARS.

A most extraordinary species of manufacture has been contrived by an officer of engineers, residing at Munich. It consists of lace and veils, with open patterns in them, made entirely by caterpillars. The following is the mode of proceeding adopted:

Having made paste of the leaves of the plant on which the species of caterpillar he employs feeds he spreads it thinly over a stone or other flat substance of the required size. He then, with a camel's hair pencil dipped in olive oil, draws the pattern he wishes the insect to leave open. The stone is then placed in an inclined position, and a considerable number of caterpillars are placed at the bottom. A peculiar species is chosen, which spins a strong web; and the animals commence at the bottom, eating and spining their way up to the top, carefully avoiding every part touched by the oil, but devouring every other part of the paste. The extreme lightness of these veils, combined with their strength, is truly surpassing. One of them, measuring 27½ by 17 inches, weighed only a grain and a half, a degree of lightness which will appear more strongly by contrast with other fabrics. One square yard of the substance of which these veils are made weighed 4½ grains; whilst one square yard of silk gauze weighs 137 grains; and one square yard of the finest net weighs 262½ grains.—*San Francisco Mining Register.*

An Important Discovery.—A most important discovery, far more so than the alleged source of the Nile, has just been made in South America. It is that the great river Amazon has been found to be navigable from one end to the other; that in fact a new route has been opened between the Atlantic and the Pacific. The Morona, a Peruvian steamer, which was sent to explore the Amazon, has arrived at Mayro, about three hundred miles from Lima. The Morona navigated more than two thousand miles of the Amazon proper and six hundred of the Yesyli and the Pachita rivers, which until then had seen only Indian canoes. The country is of course inhabited only by savages, but it is of wonderful fertility.

PETROLEUM REVIEW.

Sept 4.—Crude has been in moderate demand and steady at 32 to 33c. Refined is firm and in fair demand at 52 to 55c., the latter rate for white, and 70 to 72 for free.

5.—The market is moderately active and firm at 32½ to 33c. for Crude; 53 to 55c. for Refined in bond, the latter rate for White, 71 to 73c. for do. free.

6.—Receipts to-day, 3,731 bbls.; the market is heavy and lower; we quote Crude at 32c.; Refined in bond, 52½ to 53., and do free, 71 to 73c.

7.—There has been only a moderate inquiry for Crude during the past two or three days, owing to the scarcity of vessels to load for Europe, prices were weak and at the close heavy at 31½ to 32c. Refined in bond is scarce, in demand and firm, closing at 52 to 54c. Free oil is quiet at 70 to 72c. At Philadelphia there were twelve vessels loading for Europe.

8.—The market is inactive and prices are nominal at 32c. for Crude, 50 to 52c. for Refined in dond, and 70 to 71c. for Refined free.

9.—The market is dull, and prices are nominal at 32c. for Crude; 52c. for Refined in bond, and 70c. for do free.

11.—Crude is dull and heavy at 31½ to 32 cts. Refined in bond is firm at 52½ to 54 cts. Refined, free, is dull at 70 to 72 cts.

12.—The market for Crude is dull and heavy at 31½ to 32 cts. Refined in bond is firm at 52½ to 54 cts. Refined free is inactive at 70 to 72 cts.

13.—The market is quiet, but prices are without essential change. We quote crude at 31½ to 32 cts. Refined in bond at 52 to 54 cts. and do. Free at 70 to 71 cts.

14.—The market is very dull, and prices are nominal; we quote Crude at 31½ cts. Refined in bond, 52 to 54 cts. and do. Free at 70 to 73 cts.

15.—The demand has been fair, and the market a shade firmer, sales of Crude at 32 cts. Refined in bond, 52 to 54 cts. and do. Free 70 to 72. cts.

IMPORTANT NOTICE.

To Advertisers.—Our paper offers a superior medium as an advertising agent, to all those who manufacture or sell machinery or appliances of any kind for Gas, Mining, Water, Sewerage, the production or purification of Oils, &c. &c., not so much on account of a wide spread circulation, as from the fact that it goes directly to the hands of those who are constantly using and requiring machines and improvements for these branches, and who look through our columns for information where to pro

cure them. The class of people who read our paper not only peruse our pages of reading matter, but read the advertisements as well, for the reason that they are directly interested in all things pertaining to their business. We therefore ask, with confidence that we can do them justice, all parties having machinery or improvements of any kind for either of the objects to which our paper is devoted, to send in their advertisements and avail themselves of these advantages. It will be observed that our ms for advertisers are very reasonable.

NEW YORK MINING EXCHANGE.

NEW YORK, Sept. 15 1865.

	Bid.	Asked		Bid.	Asked
Copper Stocks.			***Gold Stocks.***		
Aztec	7		Benton	1	1⅛
Bedford	1	1	Consol'd Gregory		28⅞
Boston	4⅛	5	Corydon	—	3
Caledonia, A. P.	10	12	Gunnel	3¾	4⅛
Canada	3⅛	4	Great Western	—	8
Carp Lake	3	5	Hope	—	9
Central	—	—	Isaac's Harbor	⅛	⅞
Columbian	—	24	Manhattan	—	9
Copper Falls			Mariposa	44	44⅛
Clifton	—	81	Montana	⅛	1
Dacotah	—	5⅛	New York	2⅛	3
Derby	⅛	1⅛	N. Y. & Nova Scotia	⅛	1⅛
Douglass	—	—	Quartz Hill	9⅛	10
Evergreen	18¾	20	Quicksilver M'g Co	81	82
Flint Steel River	12	18⅛	Rocky Mountain	—	10⅛
Frue	2⅜	5	Smith & Parmelee	7	12
Grand Portage	—	—			
Hancock	12⅛	14	***Coal Stocks.***		
Hamilton	—	6	Am rican	98	100
Hilton	5	6	Ashburton	—	25
Hudson	1	2	Central	62	65
Huron	32	33	Cumberland	61	62
Indiana	8⅜	9⅜	Del & Hud. Canal	206	208
Isle Royale			Hampshire & Balt.	104	110
Keweenaw	—	6	Pennsylvania	213	215
Knowlton	7	10			
Lafayette	1	2	***Lead Stocks.***		
Manhattan	—	—	Bucks County	⅝	⅞
Mendota	—	—	Clute	1⅜	1⅝
Merrimac	4¾	5⅛	Erie	—	20
Minnesota	33	37	Macomb	3¼	5
New York, A. P.	2	3⅜	Placentia Bay	1¼	1⅝
N. J. Consolidated	4	4¼	Sussex	⅝	⅞
Norwich	—	6	Wallkill	3⅛	6
Ogima	5	6¾			
Ontonagon	3	4⅛	***Iron Stocks.***		
Penn	—	11⅜	Copake	8	10
Providence	1⅜		French Creek	⅜	1
Quincy	96⅜		Teal Lake	4⅜	6
Reliance	1⅜				
Rockland	12⅜		***Miscellaneous.***		
Superior	8⅜		Rutland Marble	17	20
Sharon Consolidated	—		*Ex. div.*		

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One set of four Purifiers, with Centre Seal, Drums, and 12 inch connections all complete, of the following dimensions:

Purifiers—19 feet 4 inches long, 8 feet 4 inches wide and 3 feet 1 1-2 inches deep, in the clear, with seven layers of sieves.

Centre Seal—5 feet 11 1-2 inches in diameter by 2 feet 10 inches deep.

Also—one Cast Iron Meter Case, 10 feet square, with 12 inch connections.

Address P. O. box 1400, New York City. [37-39

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At Elizabethport aad other points. It is remarkably free from Sulphur, and suitable for the purposes of Gas Companies, Locomotives, Steam Engines, Iron Manufacturers, aud other parties requiring a very superior fuel.

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Experimental Trial of Cameron Coal Company's Coal, from "Mount Hope" Vein,

Made at the Philadelphia Gas Works, March 20th, 1865, Charges, 100 lbs. each.

Pounds of Coal carbonized,.....3,600
Cubic feet of Gas made,.....16,285
" " per lb. Coal carbonized, 4 52·100
Coke made, in pounds,.....2,430
" in bushels,..... 63
Tar made, in gallons,..... 22
Illuminating power, 5 feet Batwing—14 44·100 Candles.

No. 34 Pine Street, New York, April 5, 1865.

George Warren, Esq., President Cameron Coal Co.:

Dear Sir—The analysis of the Coal I received from you, as from your "Mount Hope" vein, results as follows:

Volatile matter,.....26.00 per cent.
Carbon (of Coke),.....69.40 "
Ash,..... 4.60 " —100.00

The volatile matter consists of crude oil, ammoniacal water, and gas. The crude liquor product amounted to 14 gallons per ton; the illuminating Gas, 4,522 cubic feet per 1,000 lbs. coal. The Coal weighs 65 lbs. per bushel. The Coal is remarkably free from sulphur, and the Gas of excellent quality.

Yours, very truly,

(Signed,) A. K. & S. C. EATON, CHEMISTS.

Manhattan Gas Light Co., New York, April 24, 1865.

Mr. George Warren, President Cameron Coal Co.:

Dear Sir—The result of the examination of the Coal from the "Mount Hope" vein is as follows:

One ton (2,240 lbs.) yielded 9,500 cubic feet of 13 75 100 candle Gas, and 40 bushels of coke, weighing 1,550 lbs. The Coke has a good appearance, and burns very well, with but little hard clinker. Had the Coal been fresh mined, the result would have been better.

Analysis of the Coal.

Volatile matter,.....29.00 pr. ct.
Fixed carbon,.....67.20 "
Ash,..... 3.80 " —100,00

Analysis of the Gas.

Olifiant Gas, hydro carbon vapors, 4.75 pr. ct.
Carbonic oxide,..... 5.75 "

Yours, very respectfully,

(Signed) JOS. A. SABBATON, ENGINEER.

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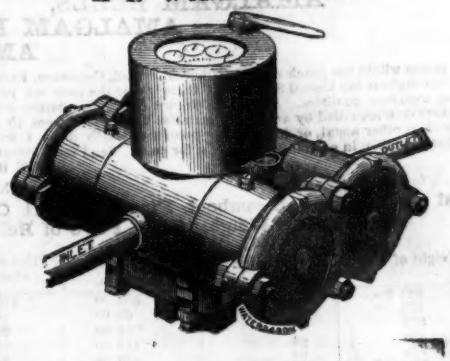

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with such ease and certainty of motion, as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our largest cities.

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225 lbs.	26 inches.	$56 00	$15 00	$71 00
275 "	42	69 00	18 00	87 00
375	36	94 00	22 00	116 00
450	64	112 00	25 00	137 00
600	02	150 00	30 00	180 00
750	29	188 00	35 00	225 00
1,000	64	250 00	42 00	292 00
1,200	48	300 00	45 00	345 00
1,400	50	350 00	50 00	400 00
1,600	52	400 00	54 00	454 00
1,800	55	450 00	60 00	510 00
2,000	58	500 00	62 00	5 2 00
2,500	60	625 00	72 00	697 00
3,000	63	750 00	85 00	885 00
3,500	66	875 00	87 00	962 00
4,000	69	1,000 00	100 00	1,100 00
4,500	72	1,125 00	1 3 00	1 288 00
5,000	75	1,250 00	125 00	1,375 00

List of Prices, Weights, and Sizes of Farm, Hotel, Steamboat, Schoolhouse, Shop, and Factory Bell.

These Bells are fitted with Yoke, Standard's Crank and Bolt, complete for use.

Weight of Bell and Hangings.	Diameter.	Cost of Bell and Hangings complete.
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100	18	25 00
150	20	37 50
200	22	50 00
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Larger Sizes made to Order at 25 cents per pound.

Guarantee.—All Bells sold at the above prices WARRANTED against breakage by fair ringing, for TWELVE MONTHS from time of purchasing. Should one fail, a new bell will be given by returning the broken one.

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In case a Bell breaks after the expiration of the Warrantee, I allow HALF PRICE for the old metal.

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AN INDESTRUCTIBLE COATING FOR

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It consists of seventy-two parts Oxide of Iron, and twenty-eight parts Cement Lime Stone in the one hundred pounds.

It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals without scaling, than any other paint in use.

It is a perfect cover for all kinds of iron, tin, or wood-work, out-houses, and canvas coverings. Prevents and arrests the corrosion of metals, and is not affected by the action of salt, gases, acids ammonia.

It hardens under water, as has been fully demonstrated by its application to gas-holders, by many of the largest gas companies in the United States; which companies having thoroughly tested its properties as herein claimed, pronounce in its favor over any other paints in the market, even though sold at double its price.

As a coating for patterns of iron or wood, when mixed with shellac, it is much superior to beeswax, oil, or shellac alone, as has been proven at the large founderies in the country.

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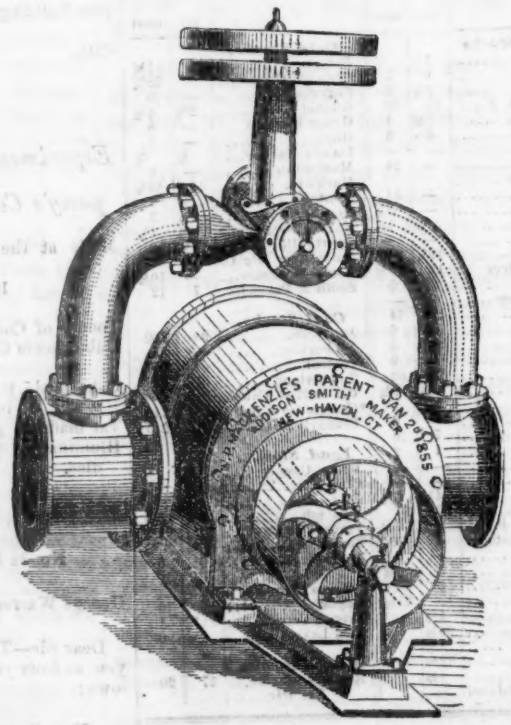

They are made to pass from 4,000 to 150,000 cubic feet of gas per hour; will increase the tion and illuminating power of the gas, and add very much to the durability of the retorts, e clay or iron. The Compensator obviates entirely the necessity of water-joints, is compact, dur cleanly, not liable to get out of order, self-acting, quiet, and certain in its operation.

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This Machine is constructed on entirely new principles of mechanism, possessing many rare and valuable improvements, having been examined by the most profound experts, and pronounced to be SIMPLICITY and PERFECTION COMBINED.

It has a straight needle, perpendicular action, makes the LOCK or SHUTTLE STITCH, which will NEITHER RIP nor RAVEL, and is alike on both sides; performs perfect sewing on every description of material, from Leather to the finest Nansook Muslin, with cotton, linen, or silk thread, from the coarsest to the finest number.

Having neither CAM nor COG WHEEL, and the least possible friction, it runs as smooth as glass, and is

Emphatically a Noiseless Machine!

PRICE OF MACHINES,
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No. 1, Family Machine, with Hemmer, Feller, Gauge, Braider, & Corder, complete. - - - $60
No. 2 Small Manufacturing, with Extension Table, $75
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No 3. Large Manufacturing, for Leather, with Rolling Foot and Oil Cup, 100

One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.

Agents Wanted in all Towns in the United States, where Agents are not already established. Also, for Cuba, Mexico, Central and South America, to whom a liberal discount will be given Terms, invariably Cash on delivery.

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WILCOX & GIBBS SEWING MACHINE

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A patented device prevents it being turned backward.

The needle cannot be set wrong.

It received the Gold Medal of the American stitute in 1863.

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224 and 226 West 21st street,
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Mercury Cups, Portable Sockets, Burner Pillars, Burner Pliers, &c., &c.

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For Lighting and Heating Purposes.
GAS HEATING AND COOKING APPARATUS; FITTERS' PROVING APPARATUS, &c.
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Conically Slotted Solid Wood Sieves
FOR GAS PURIFIERS.

The Conically Slotted Solid Wood Tray or sieve was patented 21st October, 1862, and all persons are cautioned against purchasing them of any other person except the subscriber. The following companies are now using these trays.

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WEST'S IMPROVED PUMPS, the most Simple, Durable, and Powerful, and the Cheapest in use.
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MANUFACTURER OF
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GAS APPARATUS
Of the most reliable and approved construction manufactured and on hand at the
UNION GAS METER WORKS.

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And Contractor for Coal or Oil Gas-Works.
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For sale, Parrish's Patent Gas and Air Mixer, adapted to all works using Petroleum or other oils, by which rich Petroleum Gas is mixed, after it leaves the holder, with a proper proportion of air, giving it the greatest illuminating power, without smoke, through any burners. The apparatus being attached to the outlet pipe, requires no alteration of the works.
Apply at the Gas-Works of St. Nicholas Hotel, No. 63 Mercer st., N. Y., where one can be seen in operation; or address D. Parrish, Jr., St. Nicholas Hotel, New York city, or No. 1416 Arch street, Philadelphia.

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Now contract their works to make 10,000 feet of good Gas from 2,000 pounds of *hard* wood and 40 gallons of kerosene tar, *before payment can be demanded;* and the charcoal is worth the cost of the wood.
Many Village Gas Companies can be referred to.

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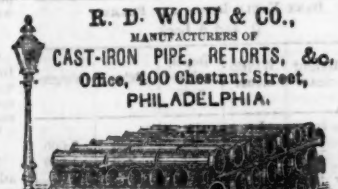

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They require no instruction to operate perfectly, except "the printed directions."

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And no taking apart to clean or oil.

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Chilled and Wrought Iron Safes,

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LOCKS AND VAULT DOORS.

These Fire-Proofs are manufactured to supply a demand for Security Against Fire, less expensive than my celebrated and superior Chilled and Wrought Iron Burglar and Fire-Proof Safes.

They furnish similar and equal security to the Safes generally manufactured in the different cities, but are SUPERIOR to them in their Fire-Proof qualities and durability, the iron being effectually protected from rust in any climate, and the Fire-proof not subject to lose its utility by age. This is an important advantage gained to the purchaser, as Safes often rust out and become worthless in two or three years.

To substantiate my position, those purchasing these Fire-Proofs are at liberty, by giving me due notice of time and place of trial, to test them by fire with any other Safe of the same size; and should they not prove superior, I will refund the money, or a new Fire-Proof, as the purchaser may decide.

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5	34	21	26	24	21	14	125
4	31	27	25	22	18	13	110
3	30	24	24	21	15	12	100
2	28	22	23	20	14	12	75
1	24	19	20	17	11	10	50

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Folding Doors, D Lock.

No.	OUTSIDE. Height.	Width.	Depth.	INSIDE. Height.	Width.	Depth.	Price.
	In.	In.	In.	In.	In.	In.	
1	66	50	29	54⅛	39	18	$950
1½	59	50	26	48	39	15	800
2	58	41	27	42⅛	33	15	600

MERCANTILE F AND B SAFES.
Fold ng Doors and Monitor Locks.

3	50	42	27	40	32	16	$500
4	46	42	27	36	32	16	450
4½	38	46	27	28	36	16	450
5	42	38	27	31⅛	27½	15	350

Single Doors and M. Lock.

6	38	35	26	27⅛	28½	15	$250
7	34	31	26	24	24	14	200
8	31	28	24	21	18	13	175
9	30	24	24	21	15	12	140
10	26	22	22	19⅛	18½	12	120
11	24	20	18	17	17	10	100

HOUSE SAFES.

SIDE BOARD	$600
DINING ROOM	350
PANTRY (No. 1)	275
PANTRY (No. 2)	150
DUODECAGON BANK LOCK	100
MONITOR SAFE do.	50
SAFE do.	10

NATIONAL BANK SAFES,
With 2 Inside Burglars and 1 D and 2 M Locks.

No.	OUTSIDE. Height.			INSIDE. Hei	Width.	Depth.	Price.
	In.			In.	In.	In.	
1	68			55	39	18	$1,200
2	61			48	39	18	1,050
3	57			42⅛	33	18	900

BANK VAULT BURGLAR SAFES,
With Folding Doors and D Lock,

0	66	59	27	54	43	20	$1,000
0½	61	56	27	55	46	20	800
1	57	47	27	49	40	20	600

BANK VAULT BURGLAR SAFES,
Single Doors and D Lock.

2	53	32	26	49	28	
	42	36	22	38	32	19
4	36	31	20	32	27	
5	30	24	18	26	20	14

BANK VAULT DOORS AND FRAMES,
D and 8 Lock.

No.	Height clear.	Width clear.	Depth adjustable.	Price.	Weight.
	In.	In.	In.		
1	72	27	20	$400	3,000
2	72	27	20	275	1,500

Orders received and filled at net cash prices, by the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York. All Safes shipped from Troy free of cartage.

Business Depart., E. ALVORD. *Corresponding Depart.*, FOWLER AND WE

WEST'S IMPROVED PUMP.

Anti-Freezing, Double-Acting, Forcing, and Lifting

These Pumps have now been in general use a number of years, and give better satisfaction than any other, and are recommended as

THE BEST!

by CAPTAIN ERICSSON and other eminent engineers. We can refer to thousands using them, a guarantee hat all will recommend them. They are more simple in construction, and work easie and cost less than all others.

"Our readers will find the double acting, improved pump of J. D. West & Co., one of the best in the market. It is very simple, works to a charm, so that any child may use it; throws a steady continuous stream, and does not freeze in the coldest exposures, and is unusually cheap. We ea this knowingly, and give the testimony of our own accord, without the knowledge or request of the proprietor"—*New York Evening Post, July 1st* 1863.

"J. D. WEST & Co.: We are pleased to state that the Pumps we had of you about a year ago, have been in constant use, twelve hours each day, and raise for the use of our woolen factory, about 130 gallons per minute. They work with but little power, compared with pumps we have used before, and do not get out of repair, and are satisfactory in all respects.

"DUNLAP MANUFACTURING CO."

Solon Robinson to the Farmers' Club. Jan. 23.

"No farmer who owns a well or cistern can possibly afford to be without an iron pump. It should be a once a suction and force pump—a perfect little fire engine—such a one known as 'West's Improved Pump.' I speak of this Pump because I happen to know it.... to be very simple, durable, powerful and cheap, and it don't freeze up, nor get out of order once a year....I know this, and think I may be doing the farmers good by speaking of it....A boy ten years old can work it, and throw a continuous inch-and-a-quarter stream.... It can be made to work in deep wells as well as in shallow ones."

"GREAT NECK, L. I., 1860.

"I have used this Pump for one summer and winter, exposed to the northwest wind coming over Long Island Sound, being the coldest possible exposure, and at no time did it freeze, nor were we unable at any time to pump water with great ease.

H. B. MC ILVAIN."

"The undersigned having to use "West's Improved Pumps," cheerfully recommend them as simple, durable, and powerful in raising and throwing water, and for their ease of action, security against frost, and low price, we believe them superior to all others.

"WARREN LELAND, Met. Hotel, N. Y.
"J. W. POMEROY, Yonkers, N. Y.
"JOHN MESEREAU, N. Y.
"DOMINICK LAWRENCE, Westchester."

From the New York Observer.

"We have had in use for months past one of West's Pumps, which has given us more satisfaction as a force and lifting pump than any we have ever used. It is one of great power, and well adapted for ship's decks, mines, factories, greenhouses, graperies, etc. *The Mining Chronicle and Railway Journal* says: 'It is recommended for its extreme simplicity of construction, great strength, and consequent durability and cheapness of repair. There is no stuffing-box—the pressure being held by a cup packing, like that upon the working-piston, working in a cylinder, fitted for the purpose within the upper air chamber—which we think a great improvement, as stuffing is so liable to be deranged and leak under strong pressure, to say nothing of the loss by friction incident thereto. It has also two air-chambers; thus the action of the valve is cushioned upon both sides by air—preventing water-hammer and vacuum-thump. The valves are very accessible and simply and cheaply repaired. They work much easier than any pump we have ever seen; the 4-inch cylinder being worked by children in wells 100 feet deep, and as they are extremely cheap, as well as simple and strong, we freely recommend them.'"

"CAMBRIDGE MINE, N. C., June 15, 1863.

"J. D. WEST & Co.—Gents: The Pump which I ordered for our mine is received, and put to work in our underlay shaft, which we are sinking. We find that one man will, with ease, lift 50 gallons per minute. We lifted in three and a half hours all the water in the shaft, which measures seven by twelve feet and thirty feet deep, and it was full when we commenced. It answers our expectations in every respect, and our workmen are highly pleased with it. It will do great service with but trifling expense for repairs.

"Yours, respectfully, BURR HIGGINS."

"This may certify, that I have been using, at my manufactory, for the last four years, 'West's Improved Pumps.' I now have in use three of said Pumps, one of which is kept constantly at work, 24 hours of each day (save Sun days), and has been running for the past two years. I pronounce them, unhesitatingly, the best Pumps that have been brought to my notice, having used many others previously. They are simple in their construction, and not easily disarranged.

"N. Y., Oct. 10, 1859. JAS. A. WEBB."

We have plenty more such certificates, but think these are enough. For Pumps, Hose, Pipe, etc., address or call upon

J. D. WEST & CO., 40 Cortlandt st, New York.

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway

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Kerosene Cooking & Heating

STOVES AND RANGES.

THESE COOKING STOVES WILL

☞ *Bake, Boil, Stew, Fry and Roast,*

With the greatest economy and facility, and without heating the room in which they are used. They are perfectly simple, operating like an ordinary Kerosene Lamp with a chimney, and are the only Kerosene Stoves that burn without smoke or odor.

"We have been perfectly astonished to see what a labor-saving, dirt saving and heat-saving institution is EDDY'S PATENT KEROSENE STOVE. Taking the cost of running it, and the result attained, it is the best patent in the market."—*Worcester Daily Spy.*

Our Heating and Cooking Stoves are very convenient and economical, especially where a fire is required but a few hours at a time.

Orders for Stoves may be sent through American Advertising Agency, 389 Broadway, New York.

LESLEY & ELLIOT,

Manufacturers, No. 494 Broadway, New York.

Send for Illustrated Circular. (136

KNITTING MACHINES

FOR

Families and Manufacturers,

☞ *Something New and Invaluable for Family Use.*

We offer the public the simplest, strongest and best Knitting Machine in the world.

It occupies but little space—is portable and can be attached to a stand or table, weighs about 40 lbs.

It will knit a variety of Stitches—the breakage of needles is trifling—the cost of needles is insignificant and the most delicate material can be knit pure and spotless, as the needles are not oiled.

Orders for Machines may be sent through the American Advertising Agency,

389 Broadway, N. Y.

Send for a Circular—Agents wanted

DALTON KNITTING MACHINE CO.,

187] 537 Broadway, N. Y.

WEED'S

HIGHEST PREMIUM

Shuttle Sewing Machine

Has only to be seen and operated to be Appreciated.

Call and see for yourself before purchasing. Please bring samples of various kinds of thread, (such as is usually found at stores,) and various kinds of fabric, which you know the former most popular Sewing Machines either cannot work at all, or, at best very imperfectly.

SUPERIORITY.

over any other Machine in the market will be seen at a glance.

1st It runs easily and rapidly, and is so constructed as to endure all kinds of hard usage

2d. No breaking of threads in going over seams.

3d. No imperfect action of the feed at uneven places in the work.

4th The Weed-stitch catches of itself, and will sew from the finest lace to the heaviest leather, and 20 cotton to coarse linen thread.

5th. The Weed Machine will do beautiful quilting on the bare wadding, without using inner lining; thus leaving it soft as if done by hand.

6th. The variety of fancy work that can be done on the

WEED MACHINE,

with so little trouble, makes it equal, if not superior, to six machines combined; for instance, it Binds, Hems, Tucks and Sews on the band at the same time, and in face, the

WEED NO. 2 MACHINE,

as before stated, is equivalent to a combination of any six ordinary machines.

Orders for Machines may be sent through the American Advertising Agency 389 Broadway, N. Y.

Below we give a few prices:

No. 2. Oil Black Walnut, Ornamented with Hemmer.	$60,00
No. 2. Oil Black Walnut, Hall Case, Ornamented, with Hemmer.	65,00
No. 3. Extra Oil Polished Black Walnut, Half Case, Large Table beautifully Ornamented.	75,00

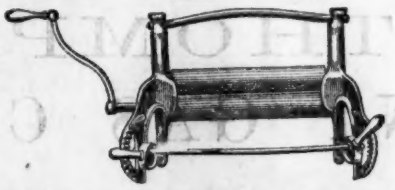
WEED SEWING MACAINE Co.,

136) 506 Broadway, New York.

PUTNAM'S CLOTHES WRINGER.

IT IS THE ONLY RELIABLE

Self-Adjusting Wringer.



No Wood-work to Swell or Split. No Thumbscrews to get out of order. Warranted with or without Cog wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $3 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*

That a *simple* machine is better than a complicated one.

That a Wringer should be *self-adjusting, durable, and efficient.*

That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.

That wood soaked in water will *swell, shrink,* and *split.*

That wood-bearings for the shaft to run in *will wear out.*

That the Putnam Wringer, with or without cog wheels, will *not tear the clothes.*

That cog-wheel regulators are not essential.

That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.

That all who have tried it pronounce it the *best* Wringer ever made.

That it will wring a thread or a bed-quilt *without alteration*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam's Wringer. Test it *thoroughly* with *any* and any others, and if not entirely satisfactory, return it;

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,

JOHN W. WHEELER, Cleveland, O.

Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*

JOHN C. LEFFERTS, No. '00 Beekman St.

NEW YORK, *January*, 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any*, to buy this Wringer. It will pay for itself in a year at most. HORACE GREELEY.

PRICES—$8, 9, and $10.

Sample Wringers sent, express paid, on receipt of price.

Manufactured and sold, wholesale and retail, by

PUTNAM MANUF'G CO.,

18 PLATT STREET, New York,

BENNINGTON, Vt.,

CLEVELAND O.

WATER AND GAS PIPE.

The Boston Bituminized Pipe Company,

Are now manufacturing and prepared to take orders for their PATENT PIPE, (from 2 to 12 inches in diameter,) as a substitute for Iron, Copper, Lead, &c., for the conveyance of WATER, GAS, SEWERAGE, &c. &c.

From the testimonials received, and the entire satisfaction it has given those having it in use, we feel warranted in claiming for this pipe over that of any other, the following advantages, viz:

It is much CHEAPER—has great strength (it having been tested to 500 lbs. to the square inch,) combined with LIGHTNESS, costing less for transportation; the joints are easily made and perfectly tight; it does not expand or contract from different degrees of temperature, and is free from *CORROSION* or *CONCRETIONS* forming; does not impart any taste or injurious properties to water, and as far as anything can be said to be indestructible, we deem this to be.

As a GAS PIPE, we say it has no superior. The Lowell Gas Light Co., purchased and laid some of this Pipe last year, and have likewise subjected samples to a test of four months duration in their dry lime purifiers, with the most satisfactory results, in fact establishing beyond a doubt, its perfect adaptation to the wants and requirements of Gas Companies, specimens of which, together with the statement of O. E Cushing, Esq., Agent Lowell Gas Light Co., who made these experiments, I shall be pleased to show, and give all other needed information, by applying in person, or by letter, to JOHN L. WEBSTER, Treas.,

Boston Bituminized Pipe Co.,

127] No. 2 Pearl st. House, Boston.

AMBROSE SPENCER GILCHRIST.

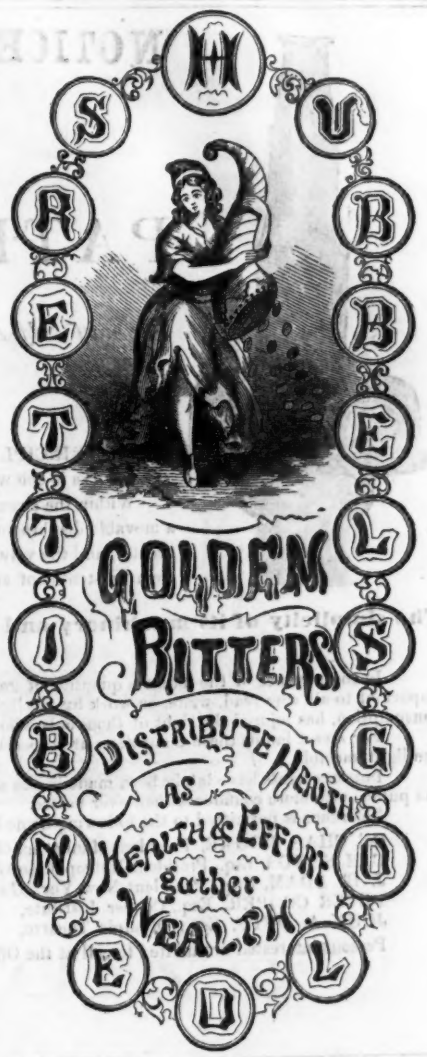
(LATE CAPT. U. S. V.)

CIVIL, MINING

AND ARCHITECTURAL ENGINEER,

No. 200 BROADWAY, Office 12.

New York.



New York, April 18th, 1864.

* * * * * *

We respectfully invite your attention to and consideration of the justly celebrated and reliable remedy for DYSPEPSIA, HEARTBURN, DEBILITY and PROSTRATION. The Proprietors are proud to acknowledge the unparalleled success which has attended the sale of their valuable preparation, known in nearly every portion of the civilized world as the

"GOLDEN BITTERS."

We risk nothing when we term them a *valuable preparation*, for they are one of the few articles of the present day which are not a humbug; and we are willing and able to satisfy any person or persons who will call upon us, that the celebrated "GOLDEN BITTERS" are a genuine *bona-fide hygienic* article. It is the wish of the proprietors that the virtue of the article be tested before condemning. A decision of their merits by any one who has tried them, is worth a million of purchased bogus testimonials.

For Creating a Healthy Appetite

they are invaluable, and are unequalled as a TONIC. They are mild in their action, and operate by giving *vigor* and *strength* to the system,—not by any change they produce in the solids, but through the medium of the living principle.

They are Purely Vegetable,

being composed of Gentian Root, Calamus, Sassafras, and many other remedial agents of the Vegetable world, all preserved in Jamaica Rum and Sherry Wine.

As a Beverage.

They are the most *wholesome, invigorating* and *palatable* stimulant ever offered to the public And the fact of their being prepared chemically and scientifically, precludes the possibility of a bitter, unpleasant taste, common to Bitters generally offered for sale. We especially recommend them to LADIES, and particularly to those suffering from

DEBILITY, WEAKNESS, AND PROSTRATION.

Half a wine glass of these "Bitters" three or four times a day, will produce a remarkable healthy change in persons greatly debilitated.

The "Golden Bitters" have been tried and not found wanting. They are put up in our own *Patent* quart bottles, and for sale by Druggists Grocers, &c., throughout the world. Each bottle bears a fac-simile of the signature of Hubbel & Co.

GEO. C. HUBBEL & Co, Sole Proprietors.

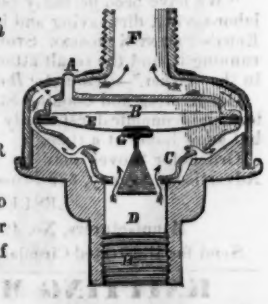
CENTRAL DEPOT, American Exp. Building, New York.

THE GOLDEN BITTERS.—We are not an advocate of stimulants of an alcoholic character; indeed we deprecate this "daily tonic" idea—this "morning toddy" which we see offered in all sorts of shapes as a recuperator, invigorator, revitalizer, &c. As a rule all artificial stimulants are dangerous remedies, and must be taken into the system as you would mercury or arsenic, in very small doses But we have had an opportunity to try the now well-advertised article known as Hubbel's Golden Bitters, and are frank to say that where the system needs building up, where a stimulant is required to aid nature in restoring a lost appetite and infusing a vigorous action to the debilitated functions, we can recommend these Bitters. Hubbel's Golden Bitters are evidently intended to improve the debilitated human system, rather than to tickle the palate, and are, therefore a harmless and safe remedy to keep in the house.—*New York Weekly Day Book.*

NOTICE TO GAS COMPANIES AND GAS CONSUMERS

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to the public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SANDS, Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "
GEO. H. KITCHEN, Inspector of Gas Meters, N. Y.
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the Office, 111 Pearl street, where they can see the operation by pressure guage and test meters

M. L CALLENDAR, Agent

Office, 111 PEARL STREET.

THE AMERICAN METER CO.

Organized under the General Manufacturing Laws of the State of New York.

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER.

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durab ility, and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

512 WEST TWENTY-SECOND STREET, NEW YORK,
ARCH AND TWENTY-SECOND STREETS, PHILADELPHIA,
No 23 WEST STREET, BOSTON, will meet with prompt attention.

HARRIS & BROTHER, PRACTICAL GAS METER MANUFACTURERS,

Continue, as heretofore, at their old Establishment, **No. 1117 CHERRY ST., PHILADELPHIA,** to Manufacture

WET AND DRY GAS METERS, and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works. ☞OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicited, and promptly attended to, by

HARRIS & BRO, No. 1117 Cherry st., Phila.

Messrs. Harris & Brother, Philadelphia Gas Works, February 14, 1857.

Dear Sirs—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality; the number furnished by you to these works is over 5,000.

JOHN C. CRESSON, Engineer.

Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.

This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entire satisfaction in point of workmanship and accuracy of registration; they are surpassed by none, and equalled by few manufactories in the Union; we have used meters made by other establishments, but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.

G. S. HOOKEY, Superintendent of the Gas Light Company of Augusta, Ga.

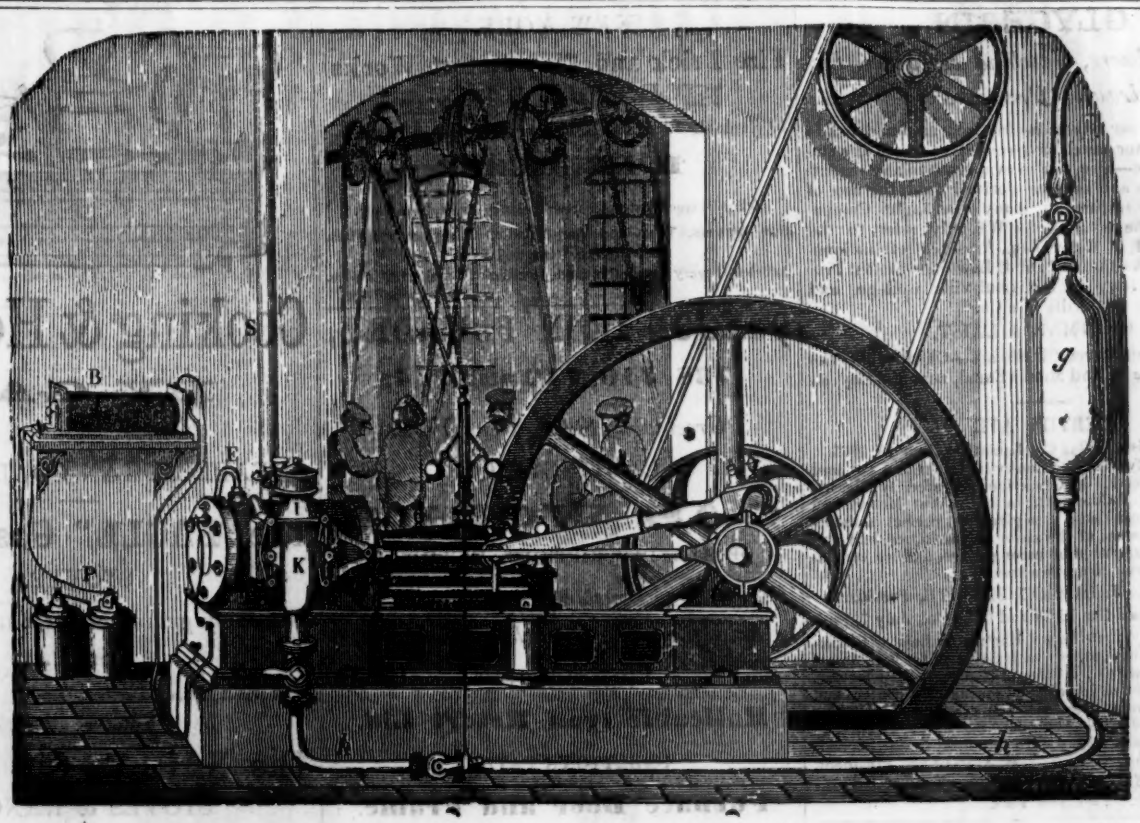
Messrs. Harris & Brother, Philadelphia. Philadelphia, March 4, 1858.

Gentlemen—We take great pleasure in bearing our testimony to the very superior character of the meters we have received from your establishment. We have always found the workmanship all we could desire, while the accuracy and reliability of their measurement have always been satisfactory. We have used meters made by other parties, and none have given as entire satisfaction as those received from you. We are, gentlemen, very truly, yours, BIRKINBINE & MEARS.

Messrs. Harris & Brother. March 14, 1857

Gentlemen—For the last ten years we have used in the Philadelphia Gas Works, meters made in your factory and take pleasure in expressing my opinion to their correctness. On several occasions I have taken your meters apart, and find the materials used in the manufacture of the same to be as fine quality as used in those imported from Europe, or made by any of the manufacturers in the United States.

Respectfully Yours, GEORGE WIEGAND,
Inspector of GasFittings, Philadelphia



MOTEUR—LENOIR.

LENOIR GAS ENGINE.

This is a horizontal engine, in which a piston, by a connecting rod drives a horizontal shaft.

The gas enters by the pipe "h" from the regulating reservoir "g," (made of vulcanized india rubber,) which regulates the feeding and the branches connected with the gas-pipe.

The tube, K, receives the gas conveyed by the pipe "h," and conducts it to the valve, which opens and closes alternately, by means of a rod moved by an eccentric wheel fastened to the end ot the shaft.

Two of Bunsen's piles, P, sufficient to produce the electricity are placed at a little distance from, and in communication with a Ruhmkorff electric apparatus, B. The electric current of this apparatus is conducted by means of insulated wires to the electricity distributor "m," placed on the front of the frame, while the current of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor.

The burnt gas, after having performed its functions in the machine, escapes, by means of a valve, through a pipe, S, and the water designed to cool the interior of the cylinder enters through a double passage, by means of a pipe situated near the escape-valve, and goes out by the pipe, E.

A two-horse and a half horse Engine are now in practical operation at the Dry Dock Iron Works, No. 435 East Tenth street, near East River, New York, where they are being manufactured, and those interested are invited to call and examine them.

THE LENOIR GAS ENGINE

Requires no Fire and makes no Smoke,

No Noise, no Dirt, and is thoroughly safe.

It is propelled by the expansion of Air, dilated by the combustion of Gas within the Cylinder, ignited by the

ELECTRIC SPARK

GLYCERIN

For Wet Meters, Gasoline Machines, Hydraulic Presses, &c.

We warrant our Glycerine free from acid and not to corrode the Meter metal, or to congeal or freeze at a stated temperature—also, not to evaporate to any extent The advantages and savings derived from the use of our fluid can be testified by many Gas Light Companies which we have supplied. We only refer to the certificates of H. J. Miller, Esq., President of Cincinnati G. L. and Coke Co., and Dr. J. Lawrence Smith, Professor of Chemistry in the Louisville College, and President of the Louisville Gas Co.

HARTMAN & LAIST,

Office No. 71 Main street, Cincinnati —Chemical Works on Providence st. and Miami Canal, near Findlay st.

CERTIFI ATE.

Office Louisville Gas Co., Louisville, June 28, 1865.

This is to certify, that the Louisville Gas Co. have used for about two years, the Glycerine prepared by Messrs. Hartman & Laist of Cincinnati, in their Wet Meters, and have in all instances found it to give most perfect satisfaction. Prior to the use of the above Glycerin, we had employed that manufactured by other parties, and we consider H. & L.'s superior to any we used.

J. LAWRENCE SMITH, President.

Office Cincinnati Gas Light and Coke Co., July 7, 1865.

This will certify, that Messrs. Hartman & Laist of Cincinnati, furnished this Company with Glycerin for Wet Meters some two years since It has proved very satisfactory, having resisted the action of frost during two winters and evaporating not more than six per cent. per annum, as guaranteed by them. The standard being, for density, 15 deg Beaume's scale. They were the first to introduce it practically to this Company. H. J. MILLER, President.

☞ L. BRUCKMAN, 107 Warren street, up-stairs, Agent for New York.

GLYCERIN

For Filling Wet Meters,

AND OTHER PURPOSES.

We solicit attention to Glycerin for filling Gas Meters in place of high wines, or any other substance — Our Glycerin is superior to anything ever used for the purpose, being entirely free from corrosive property, and made from the same material as the finest article for medicinal use. It will not evaporate, consequently there will be no further expence necessary in filling Meters. Glycerin of 15° Baume will stand a temperature of 14° below zero without congealing, and the more concentrated the greater degree of cold it will stand.

We have been engaged in Manufacturing Glycerin the past 8 years, and from our advantage in material and the large amount we make, are enabled to offer it lower than any manufacturer in this country. Finding the wide range that Glycerin would assume in Pharmacy, the Arts and for mechanical purposes, we have entered into the manufacture of articles adapted to the various uses and are now prepared to offer it adapted to every purpose for which it can be used at less than any article now in competition with it. We annex the following letter from S. S. Stratton, Esq., to show practically its advantages.

OFFICE OF THE COVINGTON GAS-LIGHT CO.

COVINGTON, KY., Feb. 18, 1864.

MESSRS. W. J. M. GORDON & CO.:

Dear Sirs,—It affords us great pleasure in testifying to the superiority of the Glycerin Fluid purchased from you for filling the Wet Meters now in use by the Covington Gas-Light Company.

The difficulty of finding a non-evaporating and anti-freezing mixture for Wet Meters, has, in my opinion, been overcome by the use of your Glycerin Fluid

I have had it in constant use for the past four months, and during that period the thermometer has ranged as low as 14o below zero, and after careful examination, I have found the fluid in the same condition as when first put in the Meters, and without the slightest discoloration.

Its non-evaporating quality does away with the hitherto unavoidable expense of filling the Meters monthly, and renders Wet Meters no longer objectionable.

In fact, I can cheerfully recommend it as being cheaper and better than any other Fluid or Mixture now in use.

Very respectfully,

S. S. STRATTON, *Sup't Cov. Gas Co.*

The following Gas Companies are using our Glycerin, to whom we refer—

Auburn, N Y—Covington Ky—Portsmouth, O—Springfield, O—Newburgh, N Y—Ann Arbor, mich—Cincinnati, O—Portsmouth, N H—Xenia, O—Richmond, Ind—Annapolis, md—Dayton, O—Painsville, O—Zanesville, O—Rahway, N J—Baltimord, md—Davenport, Iowa—Manchester, N H—Urbana O—Boston and Sandwich Glass Company—Buffalo, N Y—Philadelphia, Pa—Ripley, O—Piqua, O.—Terre Haute, Ind—Memphis, Tenn—Keokuk, Iowa—Pomeroy, O.

☞ For machinery, concentrated Glycerin possesses superior advantages, not becoming solid at the freezing point of mercury and not affected as oils are by exposure to the atmosphere.

W. J. M. GORDON & BRO.,

MANUFACTURING

CHEMISTS & DRUGGISTS,

N. E. Cor. Central Avenue & Eighth St.,

Laboratory, West Side Miami Canal, opposite Fourth street,

CINCINNATI, O. 136

NEW YORK

Fire Brick and Clay Retort Works

☞ *Established in* 1845, ☜

(Branch Works at Kreischerville, Staten Island,)

B. KREISCHER,

Office 56 Goerck street, corner Delancy street, New York.

GAS RETORTS, TILES and FIRE-BRICK of all shapes and sizes. FIRE MORTAR, CLAY, and SAND.

Articles of every description made to order at the shortest notice.

B. KREISCHER.

OREGON IRON FOUNDRY,

738, 740, 742 and 744,

Greenwich Street, New York.

CASTINGS FOR

GAS WORKS

OF ALL DESCRIPTIONS, INCLUDING

Purifiers, Exhausters, Compensators, Self-Acting Valves, Branches, Bends, &c.

FLOYD'S PATENT

Malleable Iron Retort Lid.

SABATTON'S PATENT

Furnace Door and Frame.

Refers to—J. A. Sabatton, Esq., Engineer Manhattan Gas Co.—Col. A. J. White, Metropolitan Gas Co.—C. C. Mowton, Engineer New York Gas Light Co.—J. Mowton Saunders Engineer Baltimore Gas Co.—John T. Harrison, Engineer Savannah Gas Co.

135] HERRING & FLOYD, Proprietors.

SILAS C. HERRING. JAMES R. FLOYD.

J. H. GAUHER & CO.,

MANUFACTURERS OF

Gas Retorts, Tile, Fire Brick,

Black Lead Crucibles, and Carburet of Iron Stove Polish,

JERSEY CITY, N. J.

Refer to—Manhattan Gas Light Co. New York. [135

J. K. BRICK & Co.,

BROOKLYN CLAY RETORT,

—AND—

FIRE BRICK WORKS,

VANDYKE STREET, BROOKLYN, N. Y.

JOSEPH K. BRICK, EDWARD WHITE.

MANHATTAN

Fire Brick and Clay Retort Works,

MAURER & WEBER,

(Of the late firm of B. Kreischer & Co.)

PROPRIETORS.

Office & Works in 15th street, Avenue C,

MANUFACTURERS OF

Fire Brick and Tiles,

OF ALL SHAPES & SIZES,

Fire Mortar, Clay and Sand.

☞ Articles of every description made to order, at short notice. (135

HY. MAURER. ADAM WEBER.

Philadelphia Fire Brick Works,

Corner of Vine and Twenty Third sts., Philadelphia,

JOHN NEWKUMET,

Manufacturer of all kinds of FIRE-BRICK, GAS-HOUSE TILES, to suit all the different plans in use. Clay Retorts and Dentists' Muffles. Orders filled at short notice.

Cooking & Heating

BY GAS.

CHEAPER THAN COAL OR WOOD.

The "EAGLE" Gas Heating

STOVES,

Positively guaranteed free from Smoke or Smell.

Will Heat Offices, Parlors, Dining, Sleeping, and Bat Rooms. Also,

The EAGLE Gas Cooking

STOVES & RANGES,

Will BOIL, BROIL, ROAST, BAKE, TOAST,

STEW, and HEAT IRONS

The EAGLE GAS STOVES and RANGES have been in use for over Three years, and are found to be the most SIMPLE, COMPLETE and PERFECT Arrangment for HEATING and COOKING, in every respect ever invented, and to do the Work with LESS TROUBLE, in LESS TIME and at LESS EXPENSE than any Coal or Wood stove.

Their WONDERFUL NEATNESS, CONVENIENCE and ECONOMY can be seen at a glance.

WE ALSO MANUFACTURE

COAL OIL STOVES,

For Cooking and Heating.

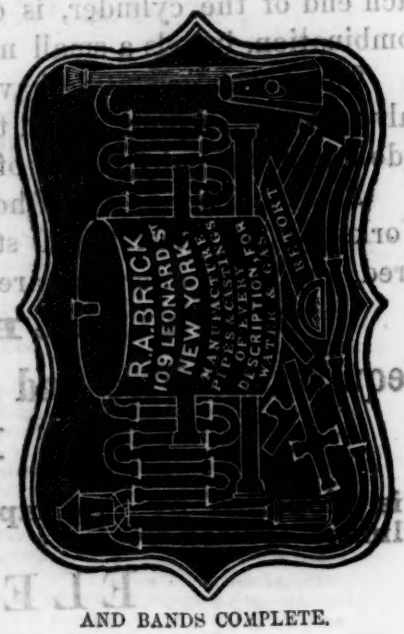
The American Advertising agency 389 Broadway, N Y. Bus. Dept., E. Alvord, cor. Dept., Fowler & Wells, receive orders for our stoves.

EAGLE GAS-STOVE MANUFACTURING CO.

No. 474 BROADWAY, N. Y.

☞ The Company have descriptive Catalogues, which will be sent or delivered, upon application for them.

DRIVING PIPE,



BERGEN IRON WORKS,

OFFICE 109 LEONARD STREET, NEW YORK.

AND BANDS COMPLETE.